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Biography

MISS EDITH GERTRUDE KNIGHT, B.V.Sc., M.R.C.V.S.

CONGRATULATIONS to Miss Edith Gertrude Knight on being the first lady who has attained both the M.R.C.V.S. and the University Degree of Bachelor in Veterinary Science. Miss Knight has the distinction of being the first lady to attain the latter honour.

Born in 1896 at Bruton, in Somerset, with an intuitive love for animals and open air life, Miss Knight's first ambition was to become a farmer, and in August 1914 she went as an Agricultural pupil on a farm in Buckinghamshire, under the tutorship of a lady who had obtained the Natural Science Tripos at Cambridge and been through an agricultural training at Reading College. When war broke out, during the absence of the owner Miss Knight took charge of everything, and with the aid of one labourer did all the work of the farm, which consisted of about 100 acres of chiefly arable land. In 1916 she went to Reading and took a two years' course in agriculture, obtaining the Diploma in 1918. Miss Knight was then offered an appointment in the Agricultural Research Department, working for a year under Dr. Stenhouse Williams on the subject of Clean Milk, and in 1919 read a paper on this subject before the Agricultural Education Association at Bournemouth.

It was whilst at Reading, mainly through the interesting lectures of Mr. G. P. Male, M.R.C.V.S., on Veterinary Science, at the Reading College, that Miss Knight took up the idea of qualifying as a Veterinary Surgeon. To have the best possible degree meant the London Matriculation, and this was passed in June, 1920, Liverpool University Veterinary School being entered in October with the final sequel at the present moment of B.V.Sc., and M.R.C.V.S.

A thorough horsewoman, Miss Knight is well known as a rider to hounds, and at the Liverpool University was elected Captain of the Women's Athletic Club on its foundation in 1922. She obtained her colours for athletics in July, 1923, after the Inter-Varsity Athletic Sports Meeting at Bristol, where she was a competitor.

The ladies have now, indeed, in reality entered the lists and are heartily welcomed as colleagues, for the trail left by Miss Cust and Miss Knight has been followed by Miss Roberts and Miss Woodward, and there are a number of lady students at the University of Liverpool Veterinary School, and the Glasgow and Dublin Veterinary Colleges. Of one thing we may be certain, that they will play the game straight and creditably follow the profession which they have joined.

Editorials

THE CONTINUANCE OF THE SPECIAL ARMY NUMBER.

JUDGING from the numbers of complimentary letters which have reached the Office, the "Special Army Number" appears to have given a great deal of pleasure and excited a considerable amount of interest.

As stated in an Editorial in the December issue, the response of our request for articles bearing upon Army subjects was greater than any one issue could accommodate, and for that reason this present number contains many overflow articles of considerable Army interest, especially one of pioneer work on Professor Forsell's Swedish "Crib-biting" Operation, by Major Townsend, who now puts it upon as satisfactory a plane of practical every-day possibility in England, as its original pioneer, Professor Forsell, has done upon the Continent.

Not only is this operation again described lucidly, step by step, by an operator who has made himself an expert, but the photographic illustrations confirm in the eyes of all beholders the results attained, and add one more conquest for antiseptic surgery and the proper application of anæsthetics to the rational application of modern scientific veterinary methods.

THE APPEAL OF THE ROYAL VETERINARY COLLEGE FOR £50,000.

THE Royal Veterinary College in Camden Town may truly be said to have been the mainspring of Veterinary Science in Great Britain; and, as has been well known to members of the profession for a number of years, its buildings and equipment have been totally inadequate for the great teaching work carried on within its walls.

Founded in 1791 by a committee of gentlemen interested in Agriculture; and, what must always go hand in hand with it, the preservation of health and the prevention of diseases amongst animals, it set out "to consider the best method of improving the art commonly called Farriery."

The birth of Veterinary Preventive Medicine began in a comparatively small way, and a diploma was granted to those who were able to pass an examination satisfactorily after attending a College course of 18 months. The first examination for this diploma was held in 1794.

"During the first four years of its existence the College had to rely on donations and subscriptions, supplemented by the small amount of students' fees, for the funds required for the acquisition of the site,

for building operations, and for the remuneration of the professor and his assistants; but in 1795, Parliament, in recognition of the national character of the work to which the Institution was devoted, made an annual grant of £1,500." Unfortunately, this grant was withdrawn about the year 1815, and although a certain amount of Government money has at different times been allotted for certain specific work in connection with the diseases of animals, with the exception of the grant made a few years ago for the new Research Institute attached to the College, there has never been anything which could really be called adequate support when one compares this with what is done for Veterinary Science by our Continental neighbours. Quoting from the appeal which is now being made in this connection, there is a statement which brings home to us the curious contrast in this respect between the Government support given to Veterinary Science in France and Germany and that given to Great Britain, in the statement that " In France and Germany the maintenance grants in a single year before the War exceeded the total amount given by successive Governments for veterinary education in England and Wales during the last hundred years."

This is a curious anomaly when one considers that it is to Great Britain, more than to any other country in the world, that the pedigree buyers of all classes of stock come as purchasers, with the full knowledge that they are getting the best value for their money. We are, too, the most " animal loving " nation, and of this we have ample evidence in the voluntary support given by every class of the community to the numerous Animal Humane Societies.

Surely on grounds of prevention of cruelty alone, the appeal for support of the Chief Institution which teaches the way to prevent and cure the suffering produced by disease amongst our animal friends, should receive the full support, not only of the members of our own profession, but of those of the British public who are so well known everywhere to have a warm spot in their hearts for suffering animals.

One reads in the appeal a paragraph which states that the " advance in knowledge regarding animal diseases and in veterinary education makes for the alleviation of pain through the prevention of disease and in the introduction of more humane methods of treatment."

The appeal which is now being issued asks for a sum of not less then £85,000 in order to bring the buildings and equipment up to date, and as an encouragement for those who are trying to get this amount together " The Lords Commissioners of His Majesty's Treasury have sanctioned a grant from the Development Fund of a sum not exceeding £35,000 for erecting new buildings and for renovating existing buildings on the present site at Camden Town." This grant

is subject to the condition that the Governors provide an equal amount, so that the first £35,000 which is given to the Appeal Fund will automatically become £70,000 towards the £85,000, which is the minimum required to put the Royal Veterinary College of London on anything like a comparative footing with the Schools of France, Germany, Holland, Denmark, Sweden, Italy, or, indeed, any of the up-to-date Colleges of Europe and America. We are at the present time, in this respect, a long way behind India and our Colonies; for the buildings of the Punjab Veterinary College and those of Toronto, Melbourne, and Sydney, make the British graduate ashamed to show a visiting Colonial *confrère* the antiquated and dilapidated Camden Town School.

A special appeal has been circulated to the members of the profession by the Principal, Sir John M'Fadyean, whose work for Veterinary Science has made his name a household word, not only in this country, but in every country in the world; and we are sure that although we are a comparatively poor profession, the response which is given will be as generous as each individual member can make it, and that he will not only make a donation out of his own pocket, but will influence the richer members of his *clièntele*, remembering that whatever sum he may collect towards the first £35,000 will be doubled by the generous grant of the Development Commissioners.

An appeal of this kind can be truly said to be a National one, for the health and wealth of a country depends to a *very* large extent upon the health of its flocks and herds and the prosperity of their owners.

THIRD REPORT OF "THE FIELD" DISTEMPER RESEARCH FUND.

THE third report of "The Field" Distemper Research Council has just been issued to its subscribers, and its conclusions, as will be seen by reference to a letter in our correspondence columns, are most hopeful.

Reference to back numbers of THE VETERINARY JOURNAL shows that for many years the crying need for a research into the causes and prevention of distemper has been drawn attention to in numerous Editorials, and that in February, 1923, it was the first professional paper to collaborate with "The Field" for the collection of subscriptions in support of the Distemper Research Fund.

"The Field" newspaper, so well known in agricultural and sporting circles all over the world, has very generously placed its columns every week at the disposal of an appeal for money to carry out a

properly organised scientific research into the causes and prevention of this scourge of the canine world ; and so successful have been the appeals broadcasted throughout the whole professional and lay press, that a sum of no less than £19,865 0s. 11d. has been received towards the £25,000 which has been asked for. The names of many of our profession are amongst the annual subscribers, but it has not been so much in actual individual amount subscribed that our profession has shown its support to the Fund as in the gathering in of subscriptions from members of their *clièntele* ; a quiet and unostentatious way of helping which does not always appear in print.

The organisers of Funds of this kind should always recollect that the support of members of the profession is like the splash of a stone thrown into a pond. One can never quite tell when the eddying rings produced by that stone terminate ; and for this reason, if for no other, our profession, although it is a comparatively small one, is always worth appealing to.

We read that the workers of the Research have reason to hope that they have now discovered a method of preventive immunisation which appears to foreshadow a very great advance in this direction. It is too early yet, on account of the smallness of the number of animals upon which observations have been made, to broadcast the news as being an absolute certainty, but results are being followed up ; and if time proves that these are as satisfactory as the preliminary observations have been, the benefits, in consequence, to the canine race and their human owners will be incalculable.

The next Annual Report (or perhaps it may be that the Scientific Committee will think fit to issue an intermediary one) will be awaited by all members of our profession and owners of dogs, with expectancy.

THE NECESSITY FOR SCIENTIFIC RESEARCH INTO CANINE DISEASES.

THE value to the profession of the scientific study of diseases special to the dog and cat has not yet been seriously realised by veterinary laboratory workers, and even at the present day it is only here and there that the practitioner receives encouragement to ask for laboratory collaboration in the investigation of some everyday problem or other of canine or feline origin. It is true that the investigation of canine distemper is now being undertaken seriously, but this would not have yet been the case had not private enterprise forced the issue by supplying the necessary financial support and thus making the road possible to be travelled. If the solution of this problem

can be found, the cost, whatever it may amount to, will not have been too great; but other problems, equally fascinating and worthy of conquest, await those who have sufficient understanding to realise the important place the canine patient has now taken in the veterinary practitioner's daily round. The advances made in surgery, by the application of antiseptic principles and up-to-date skilful methods, have restored thousands of animal pets (which would have been ruthlessly destroyed a few years ago) to their respective and grateful owners; but the solutions of the problems of *medical* diseases of dogs and cats have not kept pace as they should have done; and there are still a very large number which baffle the Veterinary Epidemiologist and the research worker in Canine Therapeutics. There is great need in Great Britain for whole-time research workers in canine disease problems and their solution may not only help the animals (for whose benefit the research is undertaken), but may, in some instances, be applied by the comparative thinker, to the benefit of man.

Canine encephalitis, polyomyelitis, certain forms of meningitis, paralysis, rheumatism, Stuttgart disease, feline distemper, follicular mange and the so-called "Hysteria" of the dog (on which several notes appear in the Clinical columns of the present issue of the JOURNAL), are only a few of the numerous medical disease problems which need elucidation; and, with so much naturally affected material at the door it is astonishing that laboratory workers seem so loth to step into the gap and centralise their efforts upon these abstruse problems until a prophylactic, or a specific cure, has been discovered. Success in this direction would not only earn the gratitude of the owners of valuable animals, but also that of the practising clinician, who has neither the time nor the opportunity for researches of this kind.

ANTHRAX IN THE ELEPHANTS AT THE ZOO.

IN view of the Broadcast talk by a medical man concerning anthrax at the Zoo, it may be interesting to note how the discovery was really made and the part played in it by the veterinary profession.

"Indarini," a very fine elephant, and a great favourite of all the children, was noticed by the keeper to be indisposed and refused its food, but no serious symptoms were observed until a very short time before its death, which occurred suddenly. No veterinary surgeon was called in, and after a *post-mortem* examination, made by the medical staff, the cause of death, as circulated to the papers, was stated to be "septicæmia hæmorrhagica of unknown origin."

The next day a second elephant was noticed to be ailing, and after about 24 hours' illness this also unfortunately died.

The Zoo authorities then called in the advice of the Honorary Consulting Veterinary Surgeon to the Society, to assist at the *post-mortem*; and on microscopic examination of the blood he at once diagnosed the condition to be anthrax. He accordingly warned the Zoo authorities of the danger to the men who had been handling the carcase during the *post-mortem* examination and reported to the Ministry of Agriculture and the Ministry of Health. The men who had handled the carcase were placed under serum treatment, and by this precaution their lives have been saved. London is almost the only city of the world with a Zoo, full of valuable animals, without a salaried and qualified veterinary surgeon on its staff. It is an anomaly which ought to be corrected.

General Articles

THE ARMY VETERINARY SERVICE IN SWEDEN.

By Veterinary-Colonel J. HEDERSTEDT,
Director of the Swedish Army Veterinary Service.

The duties of the Veterinary Service in the Swedish Army are carried out in time of war by veterinarians on the active list, veterinarians in reserve, civil veterinarians liable to military service, and by volunteers.

In time of peace the services are executed by veterinarians on the active list and in the reserve. Those on the active list come under the Medical Department, and are not organised, as in Great Britain, as a Veterinary Officers' Corps with its own Veterinary Chief.

The Veterinary Services are attached to different organisations such as the Army Medical Department, the Staff Units, the Schools, etc. The Veterinary Officer is under the command of the Chief of the Department to which he is attached and is responsible to him for the carrying out of the duties of his service, and the Chief in his turn is responsible to those in authority over him.

The highest technical authority for the Army Veterinary Service is the Medical Department, the Surgeon-General of which has under his control two branches of his Department, namely, the Army Medical branch with the Deputy-Director of Medical Services as its Chief, and the Army Veterinary Department with the Deputy-Director of Veterinary Services as its chief.

The Army Medical Department ranks with that of the Artillery, the Engineers, and certain of the Civil Departments of army adminis-

tration, which amongst other things is responsible for its general economy.

With the staff of every division is employed a Staff Veterinary Officer who also takes part in the administration of the Veterinary Service of the unit which is stationed at the same garrison town.

Generally there is a cavalry regiment, an artillery regiment, and an army service corps, to each of which respectively a Veterinary Officer is attached.

In regard to rank, a Deputy-Director of Veterinary Services holds the rank of lieut.-colonel, whilst an Assistant Deputy Director is a major, the Regimental Veterinary Officer is a captain and the Battalion Veterinarian holds the rank of lieutenant.

A Deputy Director after a certain number of years' service becomes colonel.

The pay for the Army Veterinarian varies, as is usual in all other branches of the Swedish Public Service, with the economic situation at the various places where they are stationed. It is classified in four stages, depending on the place of residence, and the rate increases every third year. In Stockholm, for example, (the highest paid class), the Deputy Director gets 11,970 Swedish crowns* per annum, the Divisional Staff Veterinary Officer 10,020, the Regimental Veterinarian 8,217, and a Battalion Veterinary Officer 7,212. As in Great Britain at the present moment, on account of the high price of food, there is a bonus added of about 14 per cent., and army veterinarians have a right to private practice.

The veterinary officers on the reserve are under the control of the Surgeon-General, and they are obliged to serve for 40 days every third year in time of peace, until they are 42 years of age. The reserve get a pension at 55 years of age of about 900 crowns.

All Swedish veterinary surgeons are liable to military service, and are obliged in time of war to join up.

Every Swede liable to military service, who has qualified as a student and who is training to become a veterinary surgeon, is obliged to go through a training course of 80 days at a cavalry barracks, under the same conditions as a cadet. In the second year he takes his training for 60 days with an artillery unit in order to become well acquainted with that branch of the service. Within a year after passing his veterinary examinations, the young veterinarian is called out for 45 days' professional training, which includes instruction in army organisation both in war and peace. He is taught tactics, training in veterinary service under the guidance of some senior army veterinary officer.

* The Swedish crowns average about 18·20 to the English pound sterling.

The Battalion Veterinarian in the regular service, some years after being appointed, goes through a post-graduate course of two months, six weeks of which is spent at the Veterinary College in Stockholm, with instruction in special army organisation and tactics; and he goes through a course of medicine, surgery, and bacteriology, which is intended to bring him up to date in his work. This course is obligatory before promotion to Regimental Veterinary Officer and any of the higher posts.

Reservists are also allowed to take this course if they wish. For the senior veterinarians there is a course of two weeks arranged every third year at the Veterinary College, with instruction in different veterinary branches. Further courses are arranged every other year, some being held in summer and others in winter.

A SURGICAL OPERATION FOR THE CURE OF WINDSUCKING AND CRIB-BITING IN HORSES.

By Major C. H. S. TOWNSEND, O.B.E., M.C., F.R.C.V.S.,
Royal Army Veterinary Corps.

I can find no account of this operation in any English veterinary text-books, nor any record of it having been performed in England.

It was originated by Forsell, who is now Professor of Surgery at Stockholm, and it has also been performed in Denmark.

In the *Veterinary Record*, Vol. V (1925), page 1,125, Mr. H. W. Steele Bodger recorded having seen in Denmark a horse which had been successfully operated on for windsucking, but he did not see the operation actually performed.

I communicated with him, and he referred me to Professor W. M. Mitchell (who had also seen the same horse, but not the operation), and he very kindly sent me a rough outline of the method of procedure. From these particulars I proceeded to dissect out the field of operation on several carcases, and during the last nine months have operated on fourteen horses, the results obtained and the experience gained being recorded below.

The operation consists of the resection of about five or six inches of each of the following pairs of muscles near to their forward insertions.

Sterno-thryo-hyoideus.

Omo-hyoid (Subscapulo-hyoideus).

Sterno-cephalic (Sterno-maxillaris).

It is presumed that these muscles are the only, or at least the principal ones, which are used in crib-biting, and by resecting them, they can no longer be brought into play for this purpose.

The following is an account of the method of procedure by which I have operated :- -

RESTRAINT.—The horse is cast and secured in a dorsal position with the head fairly well extended and firmly held by two assistants (as for the roaring operation). See Fig. 1.

ANÆSTHESIA.—General anæsthesia is essential and the patient should be well "under" before commencing the operation; as, owing to the proximity of important blood vessels, movement of any kind must be avoided.

ANTISEPSIS.—To ensure rapid healing, antisepsis is essential, and the operation is one in which this is quite practicable.

INSTRUMENTS REQUIRED :—

Two scalpels; one probe pointed bistoury; 12 artery forceps

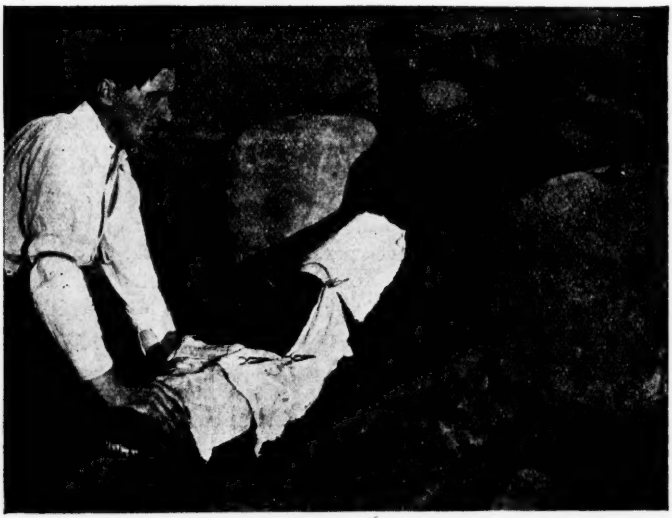

Fig. 1. The neck prepared for operation.

(Spencer Wells); suture material (catgut and silk); drainage tubes, 8 in. by ¼ in. (fluted); sterile towels and clips; sterile swabs.

TECHNIQUE.

FIRST STEP.—The skin is shaved over a large area on the ventral surface of the neck, in keeping with the incision mentioned later, and extended laterally as far as the jugular furrow.

After cleaning with alcohol, this area is well painted with tincture iodine, after which it is surrounded by sterile towels retained in position by pointed spring clips attached to the skin (see Fig. 1).

SECOND STEP.—Incision of the skin. An incision is made in the

mid-ventral line, commencing just behind the body of the hyoid bone and extending backwards for about 12 to 14 inches.

The skin and superficial fascia are reflected back on each side until the muscles overlying the trachea are exposed, i.e., the Sterno-thryo-hyoideus muscles and omo-hyoideus. The flaps of skin are grasped by artery forceps and held reflected by an assistant.

THIRD STEP.—Resection of the muscles.

(*a*) *Resection of the Sterno-hyoid and omo-hyoid.*—These two muscles (which anteriorly almost blend) are severed transversely about six inches behind the angle of the maxilla ; the severed ends are grasped

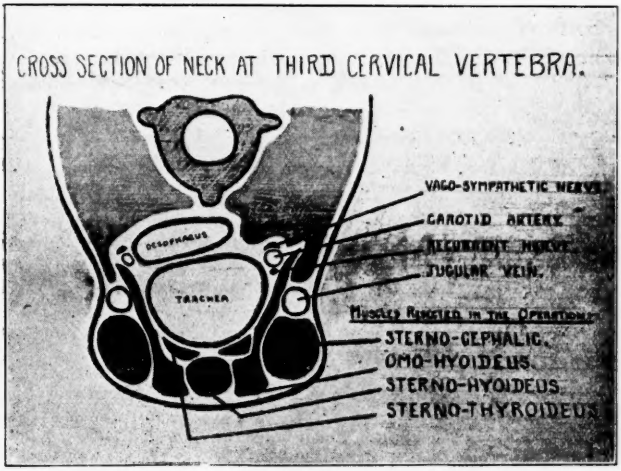

Fig. 2. Diagrammatic aspect shewing the relationship of the muscles to the surrounding tissues.

with artery forceps and drawn forward up to near their insertions, where they are again divided and the resected portions removed.

In carrying out the above, the omo-hyoid muscles must, for the posterior part of the resected area, also be cut longitudinally where they disappear between the trachea and the Sterno-cephalic, as it is not desirable to remove the portions of these muscles which lie against the jugular vein, carotid artery and recurrent nerve (see Fig. 2), owing to the risk of damaging these structures. The very small portion of muscle left does not appear to detract from the success of the operation.

(*b*) *Resection of Sterno-thyroideus Muscle.*—This muscle is now visible as a small flat band about an inch wide, and the resection of six inches

of it can be carried out without difficulty. Alternatively it may be removed at the same time as the preceding two muscles.

(*c*) *Resection of the Sterno-cephalic.*—This muscle, which appears to be particularly well developed in windsuckers, must be resected more posteriorly than in the preceding cases owing to its disappearance under the parotid gland and the submaxillary vein.

It is partially surrounded by very strong fascia (the deep layer of the superficial fascia of the neck) which seems to form a kind of sheath to the muscle at the part in question. Another part of this fascia also separates it from the jugular vein and thus facilitates the separation of the muscle from the vein without damage to the latter.

Care must, however, be taken to avoid injury to the vein, and this best can be done in the following way: Cut the fascia overlying the muscle longitudinally, starting about an inch behind the spot

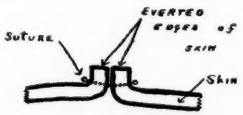

Fig. 3. Cross section to show method of suture used in closing skin wound.

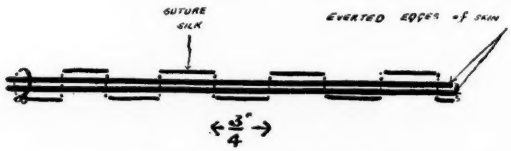

Fig. 4. Longitudinal section.

where the muscle disappears under the submaxillary vein, and extend the incision backwards for about six inches. Then insert the fingers into this incision and work round the muscle from outside inwards until the muscle is entirely separated from the fascia and encircled by the four fingers. This is facilitated by slightly flexing the head which allows the muscle to relax. A certain amount of force is required to effect this separation, but it is far safer to do it with the fingers than with a knife. Keeping the four fingers round the muscle a probe pointed bistoury is now inserted underneath, and it is cut through about an inch from whence it disappears under the submaxillary vein. The severed end is grasped with forceps and the muscle again cut through about six inches further back, and the resected portion removed. A fairly large vessel is generally situated in the centre of this muscle at the latter point, which should be ligatured after excision is complete. The muscle should not be cut anteriorly

nearer than one inch to where it disappears under the submaxillary vein as a large blood vessel, a branch from the carotid enters it just in front of this point. The fascia above mentioned corresponding to the resected portion of the muscle should now be removed, which can be easily carried out without danger to the adjacent vessels. Having resected one muscle, the same procedure is carried out on the muscle and fascia of the opposite side.

FOURTH STEP.—*Control of Hæmorrhage.*—As the operation proceeds all bleeding is controlled with artery forceps or ligatured with catgut.

Considering the structures involved, hæmorrhage is relatively slight, and is easily controlled.

The muscles in this part are very tendinous, and most hæmorrhage will come from the sterno-thryo-hyoideus muscle, while the largest muscle (the sterno-cephalic) can be resected with practically no hæmorrhage, except from the one vessel mentioned.

Finally, all accumulated blood should be swabbed out, and after ensuring that all hæmorrhage has ceased, the operation area should be flushed with sterile normal saline solution at body temperature, which removes all blood clot, etc. After this the normal saline solution is swabbed up. To effect good healing it is essential that all hæmorrhage shall have ceased before closure of the wound is commenced.

FIFTH STEP.—*Closure of the Wound.*—This is done by a single row of continuous sutures, commencing at the front and working backwards. Care must be taken to ensure that the edges of skin are everted, as otherwise rapid union will not take place. The stitch I have found to answer best is shown in Figs. 3 and 4.

Before finally closing the wound, the fluted drainage tube, 8 in. by $\frac{1}{4}$ in., is inserted and retained in position by a suture in such a way that it projects at the posterior end of the wound for about an inch.

The wound is now swabbed with a weak antiseptic, the animal turned on its side and, when sufficiently recovered from the anæsthetic, allowed to rise.

AFTER TREATMENT.

Fix the patient on pillar reins for 3 or 4 days and keep in a loose box on a laxative diet. There will be a constant drip of blood-stained serum from the drainage tube for the first day or two, but this ceases after about three days.

Beyond swabbing the operation wound with a weak antiseptic solution no further daily dressing is required, and a protective bandage does not appear necessary.

The sutures and drainage tube can be removed about the eighth day after which the wound can be dressed daily with dry dressing

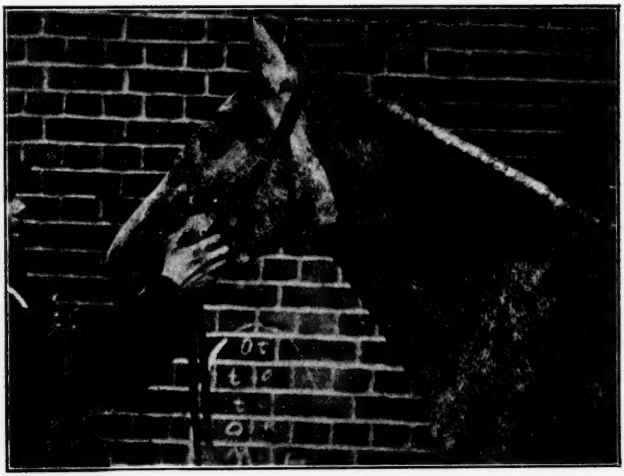

Fig. 5. Case No. 3, two months after operation.

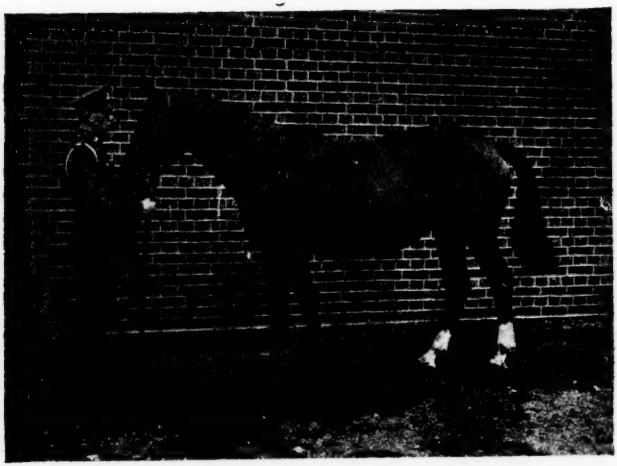

Fig. 6. Case No. 7, two months after operation.

until healing takes place, which should be complete in from 15 to 20 days.

ACCIDENTS AND SEQUELÆ.

1. INJURY TO THE JUGULAR OR SUBMAXILLARY VEIN.—This should not occur if care is taken, and if the operator is familiar with the surgical anatomy of the part.

In Case No. 1 I punctured the submaxillary vein slightly, but ligatured the puncture with catgut, and without any untoward results.

2. POST-OPERATIVE HÆMORRHAGE.—This occurred in Case No. 6, and was due in my opinion to the use of adrenalin, the only case on which this drug was used. Although it arrested hæmorrhage at the time of operation, it is not a good agent to employ owing to the fact that hæmorrhage is liable to recommence after its effects have worn off. In no other cases did post operative hæmorrhage occur.

3. SUPPURATION AND ABSCESS FORMATION.—This occurred in Case No. 1, in which no drainage tube was used. In no other case did it occur, and I do not consider it should happen if ordinary antiseptic precautions are taken.

4. NASAL CATARRH.—In several cases slight unilateral nasal catarrh occurred a few days after the operation. It disappeared, however, in about 10 days without any special treatment. I am unable to account for this catarrh, except by putting it down to ill effects of chloroform, as none of the respiratory organs are involved in the operation.

REMARKS.

TIME TAKEN TO PERFORM THE OPERATION.—The first case I operated on took about 90 minutes from the time the animal was thrown until it was allowed to rise again. In subsequent cases the total time was not more than 35 minutes, and I consider it could always be done in about this time.

It is interesting to note that at the end of the operation, just prior to suturing, the flaps of skin become quite cold. This, however, does not appear to effect healing, but nevertheless, shows that the structures involved should not remain exposed longer than necessary.

PERIOD OF TIME THE HORSE IS OUT OF WORK.—The operation wound should be completely healed in three weeks, and the horse should be fit to perform ordinary work after another week.

APPEARANCE OF THE OPERATION AREA AFTER HEALING.—Considering the extent of the operation and the amount of tissue removed, there is surprisingly little deformity. The trachea can be felt immediately under the skin, and there is a slight indentation in the sterno-cephalic muscle, but this is not very noticeable (see photographs

Nos. 5 and 6). Two months after healing one would not notice any abnormality, unless it was pointed out.

The everted edges of skin along the line of sutures after healing form a kind of ridge, but this quickly disappears; only a very slight scar being left which is hardly visible after the hair has grown.

AFTER EFFECTS, ETC.—(*a*) One would expect that by resecting these important muscles (especially the sterno-cephalic) that there would be serious changes in the carriage of the head, also that flexion and the balance of the horse might be upset.

Such, however, is not the case, and after making careful enquiries from officers and men who rode my cases both before and after the operation, I am informed that the operation makes no change whatever in the carriage of the head, balance, flexion, jumping capabilities, or "mouth" of the horses in question.

(*b*) In most cases the horse will make an attempt to crib or windsuck at some time between the third or fifth days after the operation, probably when the soreness of the operation area has worn off. If the operation is successful the inclination to indulge in these abortive attempts ceases after a day or two and does not recommence.

(*c*) It was noted that the incisor teeth were very badly worn in several cases of the Cases. It will be interesting to see if they regain their normal tables, and if so, how long this will take.

(*d*) Effect of the operation on the general health of the animal.

In all cases the condition of the animals has improved. Whereas previous to the operation the horses, as a result of windsucking were unthrifty, with bad coat and pendulous abdomens, six weeks after the operation the pendulous abdomens had disappeared and condition greatly improved.

(*e*) *Practicability of the Operation.*—Although easily performed, I do not consider the operation is likely to become popular in general practice for the following reasons:—

1. To an owner it sounds rather too drastic.

2. A certain amount of practice is required by the operator before performance, and as facilities for this are not generally available in civilian practice, it is not likely to be lightly undertaken.

3. In civilian practice it might be worth while to perform the operation on a valuable thorough-bred horse who could not be made fit enough in condition to win races owing to windsucking, but in other civilian horses windsucking is seldom sufficiently serious to interfere with the usefulness of an animal, and although an objectionable vice can, as a rule, be kept under control by individual attention, in the Army individual attention can seldom be obtained.

On the other hand, from an Army point of view, if further trial

shows it to be a permanent cure, it might be employed as a practical every-day operation.

Points in its favour are :—

(*a*) That although on paper it sounds rather drastic, in reality it is not so, and the danger to the life of the patient is practically nil.

(*b*) On service anti-windsucking or cribbing devices are not as a rule practicable, and consequently a bad windsucker frequently develops into a case of chronic debility. The operation would prevent this.

(*c*) Windsucking is thought by many observers to be spread by example, although this is open to doubt, by eliminating the windsucker, the teacher of the art disappears.

(*d*) No special instruments beyond those in the possession of any veterinary surgeon are required to carry it out, and it need not be classed as a " specialist's " operation.

In Appendix I will be found the result of the cases on which I have performed the operation, and from this it will be seen that 78 per cent. of the cases have been absolutely satisfactory ; i.e., windsucking or crib-biting has not recommenced. A period, however, of only nine months has yet elapsed since the first case was operated on, and consequently it is not possible at present to say if the cure will be a permanent one. I intend, however, to keep all cases under observation and record their subsequent history.

Professor Hobday informs me that an operation for the cure of windsucking was tried years ago by simply dividing a small portion of the Sterno-thryo-hyoideus muscle, but was given up as the horses recommenced to windsuck after a few months. Whether my cases will do this, say after two years, is at present impossible to say, but must be borne in mind as a possible disappointing sequel.

Again General Sir F. Smith (2) found that simple division of the Sterno-cephalic muscle as a cure for windsucking was unsuccessful, and the same result was obtained in America by S. E. Hershey (3).

The above operation appears to be a combination of the above two.

From observations on windsuckers and crib-biters, cases appear to perform the act in four different methods, i.e. :—

(*a*) Cribbing by catching hold of the edge of the manger, head-rope or any other article on which they can obtain a grip.

(*b*) By resting the incisors on some solid object, but not gripping it with the teeth.

(*c*) Windsucking without catching hold of any article, i.e., they can perform when on the pillar rein.

XUM

(*d*) By resting their chin on the inside of the manger, or any projecting object, and then gulping down air, i.e., they do not take hold of anything with their teeth, but appear to get the necessary leverage from their chin.

This latter class appears to be the most difficult to deal with as both cases in which the operation was a failure were of this type. It is possible other muscles beyond those resected are involved in this form of windsucking, and it may be possible yet to surgically deal with these two cases.

SUMMARY OF CASES OPERATED UPON FOR WINDSUCKING.

Case No.	Class of Animal.	Age (Yrs.).	Date of Operation.	Result.	Remarks.
1	Rider	6	12/2/26	Failure	Recommenced to crib on 2/4/26. In this case the Sterno-Cephalic muscle was simply divided and not resected.
2	Rider	11	3/4/26	Cured	
3	Rider	8	21/4/26	Cured	
4	Rider	10	11/5/26	Cured	
5	Rider	9	2/7/26	—	Died of Influenza, 14/7/26.
6	L.D.	7	22/6/26	Cured	
7	Rider	8	2/7/26	Cured	
8	Rider	5	24/8/26	Failure	Recommenced to windsuck 4/9/26.
9	Rider	10	11/8/26	Cured	
10	Charger	8	18/8/26	Cured	
11	L.D.	7	30/9/26	Cured	
12	L.D.	6	22/9/26	Cured	
13	L.D.	6	25/9/26	Cured	
14	Charger	9	9/10/26	Cured	

A question has often been asked as to whether windsucking is a vice or a disease, and whether the result of domestication. With regard to this controversy I personally saw this summer a two-year old hunter colt which had never been handled or put in a stable, busy crib-biting on a post in the grass field in which he was turned out.

In conclusion I would like to suggest that other practitioners should perform this operation and record their observations. It is only by this means that its true value can be ascertained.

REFERENCES.

(1) *Veterinary Record*, page 1,125, Vol. V, 1925.

(2) VETERINARY JOURNAL, Vol. lxxx, No. 6, 1924. An attempt to deal Surgically with Windsucking.

(3) *Veterinary Record*, page 664, 1926. Veterinary Dentistry, by S. E. Hershey.

THE VETERINARY CORPS, UNITED STATES ARMY.*

THE annual reports during the past several years have shown steady progress of the Veterinary Corps and the current one is no exception in this respect. In fact, each successive report shows new activities and greater responsibilities for our corps, all of which are being fulfilled in spite of a shortage of personnel and a great lack of hospitalisation facilities. The wide variety of veterinary activities in the army is frequently overlooked, and those who have not familiarized themselves with our present organization still consider the veterinary officer as being concerned only with the treatment of sick and wounded animals. That this is an erroneous impression can be seen from any of the late annual reports, but the following composite table prepared recently in the Surgeon General's office to show by percentages an estimate of the total effort expended by the Veterinary Corps on each of its several duties will better illustrate this point :—

COMPOSITE TABLE SHOWING THE ACTIVITIES OF THE VETERINARY CORPS BY PERCENTAGE.

	Percentage.
Meat and dairy inspection	30·00
Care and treatment of sick and wounded animals ..	18·00
Instruction and training	16·00
Animal hygiene and stable management, including horseshoeing, fitting of equipment, feeding and watering, mallein testing, shipping, etc.	10.50
Administration	7·60
Remount service	6·50
Forage inspection	5·00
Laboratory service	3·20
Army transport service	0·8
Other general duties such as boards, courts, etc. ..	2·4
	100·00

From the above table, it is apparent that in principle the presence of animals or men, or both, at a station creates a requirement for veterinary service. In other words, veterinary service of some kind should be maintained at every garrison station. It is obviously impracticable, however, to assign veterinary personnel at all stations, but during the past fiscal year service was rendered at 110 stations by veterinary officers in the capacity of station and attending veterinarians, and at 22 additional stations a limited service was supplied by specially qualified veterinary non-commissioned officers, which would indicate that our small corps of 126 officers and 557 enlisted

* *Veterinary Bulletin*, December, 1926. Office of the Surgeon-General, Washington, U.S.A.

men was assigned in such a manner as to furnish the greatest amount of service possible. Not only has this limited personnel performed a great variety of duties at 132 separate stations throughout the army, but the volume of work done has been tremendous.

MEAT AND DAIRY INSPECTION.—There was a total of 144,326,417 pounds of meat and dairy products inspected during the calendar year 1925, of which 1,316,327 pounds were rejected. One million, two hundred and seventy-nine thousand, four hundred and forty-seven pounds, or 97·2 per cent. of the rejected products were refused before purchase and returned to the contractor for replacement, and only 36,880 pounds or 2·8 per cent. rejected after purchase and lost by the Government. This is a negligible loss when compared to the amount of product handled, all of which is of a highly perishable nature, and evinces an efficient inspection service. "Noncompliance with specifications" continues to be the leading cause of rejection which, as is well known, is a result of the contractors' attempt to meet competition by furnishing a product of a lower grade than called for in the contract.

FORAGE INSPECTION.—Great improvement has been made by the Veterinary Service during the past few years in forage inspection, largely through the special courses of training in this subject being given veterinary officers from time to time by the Bureau of Agricultural Economics, U.S. Department of Agriculture, and the adoption of Federal specifications standardising and simplifying the method of grading hay. Three hundred and sixty million, six hundred and eight thousand, eight hundred and sixty-four pounds of forage were inspected and passed on first receipt at purchase during the calendar year 1925, and 18,401,205 pounds rejected and returned to the contractor for replacement. The percentage of forage rejected in comparison to the total amount inspected during the past three years has been progressively increasing, being 3·44 per cent. in 1923, 4.39 per cent. in 1924, and 4·86 per cent. in 1925, undoubtedly due to a more thorough inspection service.

Through the combined efforts of the Remount Service, the Bureau of Agricultural Economics, and the Veterinary Corps, the procurement of forage has been placed on a sound and business-like basis, and it is believed that the army is now obtaining a highly satisfactory product at a reasonable price. The broad principle of this procurement plan is that bids are requested on a large number of classes of forage which are known to be suitable for military use and contracts let for those which are cheapest, thus taking advantage of market changes due to supply and demand. By the use of Federal grades and their interpretation by specially trained veterinary officers, the army is also

assured of receiving the exact product for which payment is to be made.

Much room remains for further improvement in the matter of forage in the United States Army, particularly in connection with storage and feeding and this whole subject offers station veterinarians an unusual opportunity to exercise individual initiative and to demonstrate their ability in carrying out this important part of the responsibility toward animal management.

ANIMAL MORBIDITY AND MORTALITY.—A large part of the annual report is necessarily devoted to statistics concerning animal morbidity and mortality with a view to pointing out the chief causes of disability and death, in order that proper preventive measures may be instituted. Both the annual admission rate and death rate increased materially over the 1924 figures. The increase in admissions was due to an outbreak of ring-worm and to the incidence of influenza and kindred diseases among newly purchased animals, and the death rate appeared to have been influenced by the increased average age of the public animals. There was a total of 19,730 horses and mules admitted to sick report during the year, resulting in 1,996 deaths, or approximately 10 per cent. deaths among all cases admitted. Detailed statistics concerning individual diseases will be found in table 165.

The 10 most common diseases and injuries which occurred among horses and mules are shown in the order of their numerical sequence in Tables 166 and 167, and in this connection it is noted that thrush is again the leading disease among mules. It would seem that this relatively simple disease should be eliminated from the military establishment and its place as number 1 in the 10 leading diseases affecting mules during the past three years is certainly a serious reflection on the ability of the Veterinary Service to preserve the health and efficiency of the public animals.

Traumatisms cause over 50 per cent. of animal disability each year and a list of the offending agents during 1925 will be found, by country, in Table 168. This table should be carefully studied and every effort made to reduce this tremendous annual loss. By a comparison of the rates shown for the entire army with those prevailing locally, station veterinarians can determine whether or not their rates are relatively high or low.

SUMMARY.—As previously stated the report as a whole shows progress and the Veterinary Service may well be proud of its 1925 record. We should not, however, be satisfied with that record, and it is the purpose of the report to point out those things in which improvement should be made. It is urged that veterinary officers study the report with that purpose in view.

AUTOGENOUS VACCINES IN THE TREATMENT OF CHRONIC NASAL CATARRH IN HORSES.

By MAJOR C. DAVENPORT, O.B.E., F.R.C.V.S.,
The Royal Army Veterinary School, Aldershot.

Among the remaining problems in epizootiology which confront the Army Veterinary Service in this country in peace time, that of the catarrhal group of equine diseases, is easily the most important. It is a sad fact that in the light of our present knowledge of the causation and control of contagious disease but few young horses which join the army can be saved from a more or less severe attack of catarrh, catarrhal fever or strangles within the first few months of their military service. Indeed, it is by no means uncommon for many of them to be admitted sick on all three accounts consecutively. The delay in their training which results, and the expense to the State incurred, not to mention the usual proportion showing undesirable *sequelæ*, remains at the same time an uneconomic factor of no small importance and one for which a solution is more than overdue.

As far as nasal catarrh is concerned, the chief objection to the condition is the long periods over which animals are incapacitated owing to the continuance of the discharge. The present article is a record of an attempt which has been made in the army at home during the past three years to deal with this objection in a more satisfactory manner. It was felt that such cases, whether they be in the nature of a simple primary nasal catarrh or a sequel to an attack of strangles or catarrhal fever, might be induced to adopt a more favourable course under the influence of autogenous vaccination. The vaccines employed to this end have been prepared in the laboratory at this school, and the following is an outline of the procedure adopted in their preparation and the results obtained from their use.

Supply of Material.

In the taking of the sample of material, officers are advised to choose the early morning for the work, before the nostrils are cleaned; to remove the discharge in the anterior nares with a pledget of dry clean cotton wool and to introduce the swab as far back as possible before contaminating it.

Veterinary hospitals and branch pharmacies of the army at home are supplied with sterile swabs enclosed in glass tubes and provided with wooden containers for postage purposes as part of their normal equipment. These swabs are about 5½ in. long, and though serviceable in all ordinary circumstances in which samples of suppurative material have to be supplied to a laboratory, are hardly suitable in the present case. In place of these, sterile swabs provided with 14-inch wire handles are employed whenever possible, as their length permits

introduction well into the posterior nares. It is impossible, however, to dispatch these long swabs safely by post, and in most cases units located at any distance from this laboratory have been obliged to make use of the type of swab first described.

Preparation of the Vaccine.

It is not proposed to go into this in any great detail, as it would not prove of any special interest to the general practitioner and would contain nothing very original for the laboratory worker. There are, however, one or two points worth mentioning.

The usual procedure is followed for the isolation of organisms in pure culture from the sample of the material supplied. It is found that streptococci are very constantly present in these and in the subcultivation of this class of organism, it has proved a great advantage to employ serum-glucose-broth contained in test tubes 6 in. by 2 in. in size. Twenty-four hours generally suffice to provide a heavy pure growth of the organism, which can then be recovered by the simple process of centrifuging. For the subcultivation of other organisms, tubes of similar size containing serum-agar slopes are made use of. These tubes are conveniently sown out from a pure growth of the organism previously obtained in serum broth.

Finally, a suspension of the growth so obtained is made in 1 per cent. carbolised saline solution.

The Organisms Present.

Smears are made from the original swab and from the growths obtained in primary culture. These are stained and examined with a view to ascertaining the types of organism present, and their relative proportion. The information so obtained is taken as a guide later in the preparation of the vaccine, when the question of the choice of organisms and the proportion in which they are to be mixed has to be considered.

Records have been maintained of the organisms which have been found present in most of the swabs dealt with, and the following is an analysis of these :—

Staphylococci were present in 36 out of 43 specimens.

Streptococci were present in 28 of these 43 specimens.

A small Gram negative bacillus was present in 20 of these specimens. Twenty-three specimens also showed a few other organisms present in small numbers.

Staphylococci thus predominated. In only two cases, however, did a pure staphylococcic infection apparently exist. In 22 out of 43 specimens staphylococci and streptococci existed as a mixed infection.

Streptococci.—These were present in the absence of staphylococci

in seven specimens only. Cultures obtained from swabs taken from the nasal cavities of healthy horses showed organisms of this class in about 60 per cent. of cases, and it would be of interest to know to what extent they may be considered part of the normal flora of the nasal tract of horses. In the majority of cases in which streptococci predominated in the cases of catarrh at present under consideration, the animals were young remounts which had been in contact with, or had recently recovered from, an attack of strangles. An attempt was made to study these streptococci in regard to their relationship to laboratory strains of streptococcus equi obtained from cases of strangles. No progress was made with this work, however, partly through lack of time and partly because of the well-known difficulties which attend the study of organisms of this class.

SMALL GRAM-NEGATIVE BACILLUS.—Small gram-negative bacilli identical morphologically and culturally, were found present in 20 out of the 43 specimens recorded. It is proposed to study this organism more fully at some future date. Meanwhile attempts to isolate the organism from healthy animals have met with no success, and it would appear that it is not a normal inhabitant of the nasal tract.

OTHER ORGANISMS.—These included unrecognised diplococci, cocco-bacilli, thin gram-negative bacilli and large gram-positive bacilli. Except for the first-named they were present on a few occasions only. In all instances the proportion of these organisms was small. Bacillus pyocyaneus and Bacillus subtilis were found once.

From this analysis it would appear that the organisms concerned in the condition of chronic nasal catarrh in horses belong mainly to the staphylococcic and streptococcic groups of organisms.

STERILIZATION OF THE VACCINE.

The vaccines used are carbolised products, 1 per cent. carbolised saline solution being employed for the suspensions of the organisms obtained in culture and for the dilution of these suspensions in the adjustment of the dosage. Heat has not been employed at this laboratory for sterilization purposes, and no complaint has ever been received which would suggest that any vaccine supplied was not a dead one.

STANDARDISATION OF BACTERIAL SUSPENSIONS.

Brown's Opacimeter tubes are made use of for this purpose (1). Fixed dilutions of the original suspensions of organisms are made and compared with the nearest corresponding tube in the opacimeter scale. The latter has an opacity equivalent to known strengths of suspensions of the staphylococci and streptococci. From this an

(1) Further observations on the standardisation of bacterial suspensions. H. C. Brown. *Indian Journal of Medical Research*, July, 1919.

estimate of the strength of the original suspensions of the organisms is readily calculated.

ADJUSTMENT OF DOSAGE.

The suspensions of organisms are suitably diluted for dosage purposes and then mixed. The mixture constitutes the vaccine. The vaccine is issued in four doses, each of 1 cc., and each contained in a sealed ampoule. The strength is graduated so that :—

First dose is equivalent to approximately 2,000 million dead organisms.

Second dose is equivalent to approximately 4,000 million dead organisms.

Third dose is equivalent to approximately 6,000 million dead organisms.

Fourth dose is equivalent to approximately 8,000 million dead organisms.

More recently this dosage has been slightly increased so that the first dose is equivalent to approximately 2,500 million dead organisms and the last to 9,000 million dead organisms. The local reaction to this scale of dosage in the great majority of cases is slight, and the general reaction, as shown by the temperature chart, a mild one. However, it is not proposed to consider any further increase in this scale just at present.

ADMINISTRATION OF THE VACCINE.

The vaccine is supplied with the recommendation that the four doses should be inoculated subcutaneously at four to seven-day intervals, depending upon the degree of reaction obtained. If the reaction is excessively violent it is recommended that the next dose be given halved and a longer interval allowed to elapse.

RESULTS.

For the purpose of recording results, a vaccine treatment card is supplied in each case. A record of 46 cases treated by autogenous vaccination is shown overleaf. This list does not represent the total number of cases for which vaccines have been supplied. In some cases, owing to change of officers, it has been found impossible to recover the treatment cards or the necessary records have not been properly maintained. In other cases it has transpired that the vaccines were employed in cases which should have been more properly diagnosed as some other condition than nasal catarrh. Also in a few cases it appeared that the vaccines were employed on cases which could not properly be considered " chronic."

Thus in selecting the attached for publication care has been taken to exclude any case in which the correctness of the diagnosis was in doubt, or in which it did not appear that the nasal discharge had

RESULTS OF TREATMENT WITH AUTOGENOUS VACCINES.

1	2	3	4	5	6	7
Laboratory Number.	Date Admitted to Hospital for Catarrh.	Date First Dose of Vaccine was given.	Date Discharged from Hospital Cured.*	Number of Days Sick before Vaccine Treatment was commenced.	Number of Days Remaining in Hospital after First Dose of Vaccine was given.	Number of Doses of Vaccine given.
664	25-2-24	18-3-24	14-4-24	21	27	4
673	12-2-24	23-3-24	7-4-24	39	15	4
744	13-6-24	30-7-24	15-8-24	47	16	4
745	9-5-24	31-7-24	15-8-24	83	15	4
746	1-3-24	30-7-24	15-8-24	151	16	4
747	5-6-24	30-7-24	13-8-24	45	14	4
748	21-6-24	30-7-24	15-8-24	39	16	4
772	19-6-24	20-8-24	20-9-24	63	30	4
788	27-7-24	2-10-24	Failure	67	—	4
794	20-7-24	2-10-24	14-10-24	74	12	3
806	20-8-24	20-10-24	14-11-24	62	24	4
827	1-8-24	26-10-24	14-11-24	86	19	4
852	27-9-24	18-11-24	3-13-24	52	15	4
896	16-11-24	17-12-24	2-1-25	31	16	4
897	7-10-24	23-12-24	9-1-25	77	17	4
922	24-10-24	19-1-25	13-2-25	87	25	3
940	29-12-24	1-2-25	26-2-25	34	25	4
941	12-1-25	7-2-25	26-2-25	26	19	4
1146	3-10-25	23-10-25	9-11-25	20	17	4
1148	31-8-25	23-10-25	9-11-25	53	17	4
1149	19-8-25	23-10-25	9-11-25	65	17	4
1150	9-10-25	23-10-25	12-11-25	14	20	4
1164	4-8-25	12-11-25	23-11-25	100	11	2
1166	11-9-25	12-11-25	19-11-25	62	7	2
1312	27-1-26	9-3-26	29-3-26	41	20	3
1371	6-5-26	5-6-26	24-6-26	30	19	4
1372	24-4-26	5-6-26	22-6-26	42	17	4
1380	3-5-26	18-6-26	20-7-26	46	32	4
1382	18-4-26	19-6-26	Failure	62	—	4
1384	13-4-26	1-7-26	1-8-26	80	31	3
1426	4-8-26	19-8-26	7-9-26	15	19	4
1433	28-5-26	24-8-26	12-9-26	88	19	4
1435	15-7-26	26-8-26	29-9-26	42	35	4
1443	8-6-26	1-9-26	1-10-26	84	30	4
1446	21-7-26	9-9-26	23-9-26	50	14	2
1447	4-8-26	9-9-26	20-9-26	36	11	2
1449	28-7-26	9-9-26	17-9-26	43	8	2
1465	9-6-26	13-9-26	11-10-26	96	29	4
1466	28-7-26	13-9-26	Failure	47	—	4
1467	27-7-26	13-9-26	10-10-26	48	28	4
1468	7-7-26	13-9-26	30-9-26	68	17	4
1470	21-6-26	14-9-26	5-10-26	85	22	4
1471	23-7-26	14-9-26	14-10-26	53	31	4
1472	19-7-26	20-9-26	30-9-26	63	19	3
1473	28-5-26	14-9-26	30-9-26	109	16	4
1475	19-7-26	14-9-26	Failure	57	—	4

* This is not necessarily the date the discharge from the nostrils ceased, as some cases are known to have been retained longer in hospital for debility.

been in existence for at least 14 days before vaccine therapy was resorted to.

Column 5 in the attached shows the number of days the various animals were sick with nasal discharge before vaccination was commenced. A great variation will be noted.

Column 6, on the other hand, shows the number of days taken to effect complete recovery following inoculation of the first dose of the vaccine. The interesting point is the large number of cases in which this reading is round about 15 to 19 days where four doses of vaccine had to be given, or about 11 days where only two doses of vaccine had to be given. For instance, in case No. 1,148 nasal discharge continued for 23 days before vaccination was resorted to. Case No. 746 on the other hand, was discharging for 151 days before vaccination was made. Yet in both cases recovery took place within 16 or 17 days of inoculation of the first dose of vaccine.

It is felt that the results so far obtained justify a further and more extended trial of this method of treatment.

THE TREATMENT OF IRITIS.

By Major H. GREENFIELD, O.B.E., M.R.C.V.S.,
Royal Army Veterinary Corps.

Iritis, commonly known as "Ophthalmia," has proved so intractable to treatment that its discussion is desirable and measures to prevent it are obviously needed.

Preventive Treatment.

Until its etiology is established and proved, it is difficult to legislate for an undefined cause. Still, endeavour should be made to mitigate the special conditions under which the disease arises.

In peace, and in civilized countries, iritis is rare and virtually confined to origin in insanitary stables. All faulty conditions which can affect the eye should be modified. Good ventilation be arranged to facilitate drying of standings and clearance of ammoniacal fumes. Light is essential for cleanliness. Efficient roofs or properly floored lofts, and reasonable height of hay racks are necessary to prevent eye injury from falling dust, hay seeds, etc.

On active service the condition abounds, particularly when animals are exposed in the open to dust and wind, and when operations are protracted.

Animals in small units or groups should be tied up in the lee of buildings, banks, trees or wagons. Where this is not possible, they should be picketed as close as practicable, in order that those facing

the wind may obtain shelter from those on the opposite side of the line.

We know that iritis occurs as a sympathetic and subsequent affection in the opposite eye to one suffering from special lesions, although it is not certain how this occurs or how often.

Iritis has been observed to follow previous minor eye complaints. (See this Journal, May, 1904, Guard, J.A.V.M.A., 1925.)

Care is desirable, therefore, to insure that treatment of mild early lesions do not induce subsequent serious ones. Consequently, all animals under treatment for eye disease should be treated in the dark, or shade, or have the eye covered. Agents employed, should be neither drastic nor counter-irritant. Atropine should be used to check pain, photophobia and inflammation as soon as demonstrable.

In S. Africa where camps were dusty and swept with wild sand-storms, I had the eyes of all horses washed out periodically with Hyposulphite Soda Gr. XV–℥i. This was considered successful.

Curative Treatment.

Remedial measures to be effective must be aimed at the causative origin, as well as the relief of symptoms. In the respect of the former there are some obvious difficulties.

I think the possible infection from the lacrymal sac should be considered and advise that the nasal duct should be syringed out with Hyposulphite Soda Gr. XV, or Boracis Ac. Gr. V-X to the ounce of warm water. If this does not remove a cause, it facilitates drainage of the conjunctival sac and relieves symptoms.

Procedure is simple with an ordinary dressing syringe, and resented less than one might expect. When effected the liquid pours freely from the *puncta lacrymala* as a steady flow—occasionally as a jet. In cases of acute irido-cyclitis this procedure is better delayed somewhat.

Great care should be taken to examine the cornea for ulceration. Flourescin should be used to determine the point if necessary. It is essential to ensure that such abrasions are cleansed and disinfected to check infection through the abraided surface. Applications, such as pure carbolic acid, silver nitrate, tinct. iodine, hydrogen peroxide, may be used, care being taken to prevent excess spreading over the eye surface.

Some surgeons curette old-standing ulceration.

Most writers recommend purgation and laxative diet. This appears to originate from the idea that the disease was metabolic in origin. Experience gives little to support important steps in this direction, or consider that it has proved of value.

General systemic treatments have proved of little avail in my practice. Some authorities recommend a course of iodides. Guard speaks well of arsenical dosage.

Symptomatic treatment should be directed on the following lines :—

1. Reduction of congestion, pain and irritation.
2. Attempt to produce mydriasis, break down adhesion in the early stages, and increase pupillary accommodation.
3. Try to induce absorption, to remove hypopyon or lymph, fluid, plastic or organised, as it may occur.

The two most ready methods are :—

(*a*) Darkness to give rest, check the irritation of light and help mydriasis.

(*b*) Heat, which can be most effectively applied as thick flannel wrung out in hot water. This soothes pain and promotes the softening and absorption of lymph.

Of drugs, the most important is atropine. It allays irritation, soothes the pain, and when operative upon the iris, it causes its dilation, thereby reducing its congestion and share in the outpouring of lymph, and removes it from the lens, or from the focal area of it. In acute cases of irido-cyclitis it is difficult to apply and sometimes apt to aggravate the condition. Then reliance should be made upon heat for some time, and the atropine, etc., withheld till symptoms moderate.

At the onset, it is common to find that atropine cannot overcome the congested sluggish non-reacting iris. It is essential, however, to push its application, in order to effect the great benefits that dilation of the iris can confer, before lymph deposits bind the iris to the lens.

Atropine may be used as a lotion, pellet dropped in the conjunctival sac, an ointment similarly applied, or as the extract of belladonna applied to the supra-orbital area. In S. Africa I used a solution with Pot. Bromide, Bicarbonate, and Iodide, injected into the external canthus with the barrel of a glass hypodermic syringe. In general use, especially on active service, probably the most effective method is to dissolve the atropine in a minimum of water and macerate the solution in vaseline, using a small portion as an ointment in the conjunctival sac. It is speedy and effective to use, and little loss from overflow or misfire is experienced.

Boracic ac. Gr. V-X to ℥i should be used with the collyrium or ointment.

Some authorities recommend the addition of cocaine to intensify the action of the atropine. There appears no risk of glaucoma from the use of atropine in this disease amongst domestic animals.

In no case should operative interference be made to relieve

hypopyon. The symptom is usually from a germ-free liquid with the appearance of pus. When the anterior chamber is infected considerably, the eye becomes functionless, and is a danger to the other, and should be removed.

Yellow oxide of mercury ointment is a useful application in the disease, but not in any early or acute stages. It frequently overcomes the deadlock or resistance that the condition may develop in the later stages of atropine treatment, and there is reason to believe that it relieves sequelæ due to lymph adherence.

During the course of treatment there appear nearly as many cases which seem unresponsive to remedial measures as there are others in which rapid, almost magical, recovery is associated, and this is by no means few. It is on this last account that such diversity of therapeutic means have been advocated.

Many have proclaimed the injection of Lougal's solution of iodine into the supra-orbital region. Guard deprecates it. My experience is that it produces rapid aggravation and blindness in alarming numbers of cases. Units joining my division in France showed similar results.

Obstinate continuation of one dressing is not to be recommended more in this than in any other eye disease, however, for a change of dressing sometimes appears to work wonders, especially when superficial symptoms are considerable: probably cases with undefined or unrecognised corneal ulcer. I have no special recommendation to make upon any of the many antiseptics which have been so employed.

THE ADVANTAGES OF THE OFFICERS' TRAINING CORPS TO THE VETERINARY STUDENT.

By Lt. S. N. RITCHIE, M.R.C.V.S., D.V.S.M.,
Royal Army Veterinary Corps (T.A.).

In the book of Regulations for the Officers' Training Corps we are told that the primary object of the Corps is to provide students at schools and universities with a standardised measure of elementary military training with a view to their applying for commissions in the Territorial Army and the Supplementary Reserve. Thus, it should be the aim of every contingent to obtain as many certificates of proficiency as possible and to provide as many officers to these forces as it can.

Although this is the main object of the O.T.C., yet the Corps benefits its individual members to a degree which almost justifies its existence apart from the fulfilment of the main object.

The Corps comes directly under the War Office. Each university or college must have a Committee of Military Education: the Adjutant and Officer Commanding must be members and usually one or more

of the staff of the university or college are on this committee. For training the Corps is under the direction of the Chief of the Imperial General Staff and the General Officers Commanding in the Command where the particular contingent has its headquarters.

Each contingent has one or more instructors attached who are detailed from their respective units, Cavalry, Infantry, R.A., R.E., R.A.M.C. and R.A.V.C.

At one time there were two veterinary contingents in the British Isles forming part of the Senior Division of the O.T.C., but with the change of Government in Ireland the contingent recruited from the Dublin College became defunct. Meantime, then, there is only one veterinary contingent; this is in connection with the Royal (Dick) Veterinary College, Edinburgh. The Edinburgh Contingent was formed in Autumn 1912, largely due to the enthusiasm of Major Ainsworth Wilson, late Professor of Surgery at that College. Unfortunately, in the short interval before the outbreak of war, the full fruits of his enterprise had no time to mature and with the exodus of officers and students at the outbreak of war the Contingent became dormant till 1920.

It is interesting to recall the fact that on the outbreak of war in 1914 a considerable number of cadets took an active part in the development of a veterinary hospital at Stirling.

In 1920 the Contingent was resuscitated, and at this time practically all the men who joined had seen war service; many of them had held commissions, yet they were enthusiastic enough to join as cadets, realising that this form of veterinary military training was to be of great value to them.

Let us take the routine for a year of a veterinary contingent. Cadets are recruited from students of the various years and sign a contract to serve for three years; many students, however, remain in the contingent for four years at least, signing for further service after the expiry of the initial three years. They are provided with uniform and equipment and no expense is entailed by the recruit except a subscription of 7/6 on joining. Cadets are instructed in Cavalry drill, arm drill, musketry and equitation. Parades are held twice a week and in addition cadets may attend riding instruction at Redford Barracks twice a week. Cadets may sit the examination for Certificate "A" after their first year in the contingent and for this special lectures are arranged on Veterinary Establishment, stable management, and map reading. Senior cadets may present themselves for Certificate "B" and they receive lectures on Veterinary Establishment, care and management of sick and wounded animals in the field.

Examinations are held in March and November, and practical and

written tests are set. Certificate "A" qualifies for a commission in the Territorial Army and can be obtained by members of both Junior and Senior Divisions, but as there is no Veterinary Unit in the Junior Division it means that all joining a Veterinary Unit, Senior Division, must take Certificate "A" examination even though they already possess Certificate "A," Infantry, obtained when at school. Certificate "B" may only be obtained by members of the Senior Division. It will be seen from this that the Senior Division is of great service for keeping ex-members of the Junior Division in touch with military matters until they are ready to pass into the Territorial Army. Candidates for the Regular Army who hold Certificate "B" are credited with two per cent. of the total number of marks in the entrance examination.

Camps are held in Spring and Summer. The Spring Camp is a voluntary week-end camp and is usually devoted to musketry; many different units go to this camp, where cadets have an opportunity of meeting men of varied interests. As yet the War Office has not seen its way to amend the establishment in which a veterinary unit is considered as a dismounted one. Fortunately, since the war Headquarters Scottish Command has always seen its way to provide horses for training during Annual Summer Camp, which lasts 15 days and is compulsory, thus allowing the training in horsemastership to be continued and this camp takes place immediately after the professional examinations in July. Therefore, under the present arrangement for Summer Camp, each man is allotted a horse and saddlery, which he has to look after. The Cavalry drill which has been learned during the year is practised mounted and the stable management lectures are also put into practice. On route marches, map reading, march discipline, bivouacking and numerous other points in general training are unconsciously learned in a way which appeal to all with a love of the open and, here, near Edinburgh, where Summer Camps have been held each year since 1920, the open means the breezy heights of the Pentland Hills, with their beautiful vistas and their historic associations. This training at camp may not be considered by many of much benefit from a professional point of view, but it certainly provides a good opportunity for students, especially those from towns, to learn the handling and management of animals in health. N.C.O's are appointed from among the students and they carry on the work of the contingent under the supervision of the officers; by this measure the N.C.O's have an opportunity to learn administration and the handling of men. It is well known that during the war general practitioners who were suddenly thrown into army life as veterinary officers were very awkward at first because of their ignorance

of ordinary army routine, such training as an O.T.C. can offer will preclude such difficulty for many of them should there be a similar emergency in the future.

There is something which gets the best out of men and attracts the best men which cannot be defined except by that well-known army term "discipline." To the onlooker who has had no experience of army life it appears to be a cramping thing, but all those with experience will agree that there is no finer education than being told to do a rather unpleasant task and doing it cheerfully. It will not be disputed that training such as a young man receives in the O.T.C. cannot but have beneficial effects on him in after life, whether he is to command or be commanded.

There is a very enjoyable social side of the contingent's activities. At camp concerts are arranged, and it is an unwritten law that every one must contribute to the entertainment. During the college terms smoking concerts in conjunction with other societies take place and are a great asset to college life. It is a peculiar fact that at a college like this the men of each year should tend to keep to themselves; the O.T.C. has a wonderful effect in bringing all members of the college together and one knows one's contemporaries much better, especially after a camp. The chief O.T.C. function is the annual dinner, which is usually held in November, and many minor entertainments are arranged.

Finally, there is no better way of performing national service then by joining the O.T.C.: if the student intends entering the Regular Army or Territorial Army the national benefit is obvious; but apart from this the O.T.C. not only provides men who are fitted to take up commissions in the event of emergency, but it gives the country disciplined men who have cultivated that indefinable O.T.C. spirit.

Clinical Articles

THE TREATMENT OF PNEUMONIA BY INTRATRACHEAL INJECTIONS.

By Major FRANK CHAMBERS, O.B.E., F.R.C.V.S.
(late A.D.V.S., North Russia Expeditionary Force), Wolverhampton.

During the past nine months* excellent opportunities have presented themselves for observing the results obtained from the various methods used in the treatment of pneumonia.

It is difficult to draw a hard and fast line between early cases of pneumonia and catarrhal fever—they resemble each other very

* This report was originally made in 1915, when the author was stationed at Alexandria as Embarkation Staff Officer.

closely. The majority of cases which we have treated by the newer methods are those which have been received from remount depots, and which have probably come off a long railway journey the day previously. The length of the journey and the climatic conditions are the determining factors in the severity of the disease. During the ten months that I was Embarkation Officer at a large port in the East this fact was so clearly impressed on my mind that I collected statistics of a large number of shiploads of horses that arrived there after being railed from different parts of England and France to the Port of Embarkation. The number of deaths from septic pneumonia varied inversely with the duration of the railway journey and the length of time spent at the port before embarking. Those units that spent five or more days at a rest-camp before embarking had very small casualties whilst the death rate amongst the horses that were shipped immediately on arrival at the docks were enormous. The disease as met with on board ship is similar to that seen in England. On board ship the disease is undoubtedly infectious, due to the decreased vitality and resistance of the animal, combined with the overcrowding that is peculiar and unavoidable on board. Under ordinary conditions I do not think that a case of septic pneumonia would be of any danger when placed amongst healthy horses. Very few cases of septic pneumonia recover, and if small areas of lung do become septic and a recovery takes place, the patient is usually left in such a condition that it is doubtful if it is of any further use to the Army afterwards. Those dead areas become encapsuled and the animal may be described as a "lunger." A similar condition exists in cattle after an attack of pleuro-pneumonia contagiosa, where a recovery has taken place.

TREATMENT.—The intrajugular injection of a solution of formalin was given a good trial in November and December of 1916, but owing to the varying results it was discarded in favour of the intratracheal injection of a 10 per cent. solution of formalin in water. After some weeks it was observed that when hepatisation was well advanced the injection of formalin did not exert any great beneficial action. It was afterwards made a routine procedure to give every animal an injection that was admitted with catarrh or catarrhal fever, for it is these cases that have come off a railway journey that after a few days in hospital develop typical symptoms of pneumonia. After this procedure was adopted the mortality from cases admitted with respiratory trouble decreased to a wonderful extent.

An analysis of the first 50 cases treated by this method works out as follows :—

Disease.	Number Treated.	Deaths.
Pneumonia	3 ..	—
Influenza	2 ..	—
Catarrhal Fever	44 ..	1
Strangles	1 ..	—

After treating several hundred cases it was found that in those cases that died after having been treated with formalin a violent inflammation was produced in the mucous membrane of the trachea opposite the site of injection, if more than four consecutive doses were given. The solution should be slightly warmed and 10 c.c. injected slowly. The needle should be of the trocar type. An ordinary needle gets blocked up by portions of the cartilage of the trachea. One or two injections may be given daily, but it is not advisable to make more than four or five consecutive injections.

In order to attempt to improve on this method creosote was substituted for the formalin and 10 c.c. of the following mixture was injected :—Creosote, 1 part ; 63 per cent. alcohol, 10 parts.

No inflammation follows the injection of this mixture and our results showed that the use of creosote was to be preferred to formalin.

An analysis of the first 50 cases treated with creosote showed :—

Disease.	Number Treated.	Deaths.
Pneumonia	3 ..	1
Influenza	1 ..	—
Strangles	1 ..	—
Catarrhal Fever	44 ..	—

Over 400 cases of chest affections have now been treated by both methods and each appears equally beneficial ; but I favour the use of creosote on account of its non-irritability.

THE OPENING OF THE STRANGLES ABSCESS.

By Lt.-Col. J. W. RAINEY, C.B.E., M.R.C.V.S.
Late Royal Army Veterinary Corps.

It is traditionally held by some of the older school of horse-men that strangles abscesses should not be opened by any artificial means, but should be allowed to burst naturally.

This belief appears to be well founded : *the strangles abscess may be nature's vaccine-laboratory*, of which the potential use comes to an end when the abscess is opened or bursts naturally, but not before.

Veterinary academical teaching advocates the surgical opening of the strangles abscess for at least two reasons : (1) That if it is not thus opened the abscess may burst internally, whatever that may mean ; (2) That the natural way of opening involves an objectionable amount of tissue-destruction.

Nothing is impossible in clinical experience, and ordinary strangles abscesses may have burst "internally" to the detriment of the patient, but the occurrence must be rare indeed.

On the other hand, secondary and even fatal abscess-formation following unduly early surgical interference is only too common.

In regard to the second objection it would be necessary to make a very careful search to discover any real blemish resulting from any method of opening a strangles abscess after a few months had passed.

The writer does not, in short, admit the validity of either objection, but he does accept on practical and scientific grounds the old-fashioned belief that nothing more surgical than the bare finger should be used to open strangles abscesses.

TRAUMATIC PERICARDITIS IN CATTLE.*

By R. HUDSON, F.R.C.V.S.,
Retford.

THE diagnosis of traumatic pericarditis is not considered difficult. Perhaps it is not, if we rule out suspected cases which do not emit the characteristic tinkling sound on auscultation, but there are many cases where the sound is absent and in which there is an absence of fluid. The pericardium has become thickened by fibrinous deposit and closely adherent to the surface of the heart.

In such cases all the other symptoms may be present, but the heart sound difficult to hear owing to displacement of the organ and the thickness of the deposit.

There may be a jugular pulse and fullness of the vein, œdema at the submaxillary space and sternum, interference with rumination, tympany grunting, loss of appetite, cough, increased respiration, resting the lower jaw on the manger, etc.

I have never seen a case in which the jugular vein was not distended but I have had slaughtered animals with a distended jugular which had not traumatic pericarditis on P.M.E. Some have had tuberculosis in the region of the pericardium and two cases have had vegetations on the right auricular ventricular valves.

It is not wise to express oneself too surely with regard to a rapid fatal termination, for one of the worst cases I have seen, one in which the tinkling sound was present, was alive many months after I had consigned her to the butcher.

On examination after nearly 12 months I was as sure of my diagnosis as when I first saw her. She was improved in condition and had milked well all the summer.

* This clinical report was received December 5th, 1926.—(EDITOR.)

During this summer another case has shown improvement. Slaughter was not pressed, as she was milking well and the owner wished to risk her.

It is rare to find a case worth killing for food, owing to peritonitis, abscess formation and extensive pleurisy. The owner is usually desirous of making the best of it and the veterinary attendant cannot very well form any idea of the extent of the lesions—during life, so the case is butchered, only to find that it is useless.

About the time that Pugh's article appeared in the October Journal I had been wondering if something could not be done by operating on some cases, and I determined, on reading, to carry it out on the first case I thought suitable, viz., one in which I was sure of fluid in the pericardinal sach.

Eventually such a case came along and an operation was arranged. The patient was cast and fixed with the fore and hind legs extended.

The locality for the operation was not easy to locate. The phonendoscope would not reveal the position of the heart when the patient was recumbent, but with the ear I could faintly hear a splashing sound, so I took the false rib over it for the line of the incision.

The new local anæsthetic borocaine and adrenalin was injected under the skin and into the muscle, and its action was very satisfactory.

The fourth rib was bared and an incision made along its border into the intercostal muscle, then the finger was forced under the rib, above the pleura and round to the opposite border. An embryotomy chain saw was passed under the rib and the latter easily cut through. The rib was now raised and disarticulated. The opening was not large enough to admit my hand, so about another inch of rib was removed.

The pleura and pericardium were now punctured, allowing the escape of gas and dirty fluid. The hole was enlarged and an attempt made to mop out the fluid. There must have been a bucketful, and it took a long time to remove. I tried the stomach pump but it would not do it.

Having cleared out as much as possible I passed my hand into the heart sach, searched it well for a foreign body, but failed to find it. I was disappointed, but thought it might have been forced out by the splashing of the heart.

The sach was flushed out with a weak solution of Lysol, the wound swabbed with a stronger solution and the edges drawn together with strong wire sutures, leaving a hole for drainage.

The patient was now allowed up and placed in a small paddock.

She immediately commenced to feed, though she had refused food for some days and was very ill previous to the operation. The operation gave immediate relief and for some days we had to limit her in the amount of food she would have eaten.

The wound into the pericardium was flushed out with the stomach pump daily with a solution of Sanitas. It became very foul smelling, with sloughs at the edges, but the cow herself improved in a remarkable manner.

About the tenth day she commenced to bleed from the upper part of the wound and was dead in two hours. I did not see her then, but the owner told me it spurted on to the wall about two feet away. Where it came from I could not imagine, for the operation was practically bloodless.

It was a disappointing ending, but not so when I made a P.M.E. I could not find where the hæmorrhage had occurred.

The foreign body was found, but it was difficult to locate. It was in a mass of growth involving the diaphragm and reticulum. A piece of flattened wire bent at an angle and about six inches long. It was not penetrating the heart sach, though a sinus may have led to it.

Two large abscess cavities, one in front and one behind the heart were present and appeared independent. So, though the cow had, to all appearance, been improving it was evident that she could never have recovered.

That the operation is worth doing is shown by Pugh's results and given a favourable case I am hopeful that I may some day meet with success.

DEATHS FROM FLUKE AND COCCIDIOSIS IN CATTLE.

By G. JONES ROBERTS, F.R.C.V.S.,
Pwllheli.

In looking up The Veterinary Journal for April 1926, I noticed an article by Bissett on Fluke in Cattle, and from what he states he seems to think that it is rare to find the parasites causing acute symptoms, let alone death.

During each year that fluke has been very general in sheep in my practice, cattle have been also affected, particularly yearlings; and, although I have seen much more severe infestation in sheep than year 1925-6, I have never seen so many cattle affected as in that year; and another peculiarity noticed was that in previous years cattle became affected in September and October, but in this season I saw

none until December, after the cattle had been taken in and housefed. I do not think that I exaggerate when I say that I saw 100 yearlings affected, and in some cases there were very many deaths before the farmers knew what was wrong as they thought it was Johne's disease. The symptoms of both are very similar, and in regard to diagnosis clinically, apart from microscopical examination, I can never be sure except that the age factor certainly helps diagnosis and usually there are more than one when it is fluke. The *post-mortem* appearances are exactly like those of sheep, the liver condition depending on the number of flukes taken in and the length of time the animal lives. One very interesting case happened where I had to take a back seat with a vengeance. There were 20 yearlings affected, and I was sure in my mind it was fluke, and after sending the fæces to Mr. Montgomerie at Bangor for examination for fluke eggs (I had failed myself to find any) the diagnosis was confirmed. I went to see the farm again and re-examined the pasture, but could find no trace of the flukes anywhere on the land. The calves had been there all the summer, and the only water supply was in a trough to which it was carried through pipes from another part of the farm.

I gave it up and thought the farmer was wrong and that the calves had been somewhere else on the farm during the summer, but in a week's time I was called again as I was passing, and the farmer showed me at the bottom of the trough where the calves had been drinking fully two bucketsful of snails; these having been carried through the pipes a distance of 600 yards and deposited in the trough.

Another disease which has been prevalent in this district this season is coccidiosis. It is quite common to see an odd case of it during summer months, but this year (1926) it has appeared as an epidemic, 11 calves from 8 to 14 months old in the same farm being affected. Altogether, I attended about 60 cases and in consulting adjoining practitioners I learned that they had had similar results. When one animal only is affected it is usually a full grown cow, and it is rarely that they show acute symptoms—just the passing of blood in the fæces and usually they do not stop feeding—but in young stock it has been very fatal unless their strength has been kept up with very nourishing food, and active treatment has been adopted.

Will any practitioner who has had similar experience tell me the best method to prevent its recurrence next season? as it is difficult to change the water supply and probably they have tainted the land extensively this summer. The rabbits on one of the farms I know were affected, hence there is likely to be more dissemination.

SWINE FEVER: ITS CURATIVE AND PROPHYLACTIC TREATMENT WITH SWINE FEVER SERUM.*

By W. WALLACE KERR, M.R.C.V.S.,
Saffron Walden.

Introduction.

As there is great diversity of opinion regarding the efficiency of "The Serum Treatment" of this disease, it is the desire of the writer to set forth his experience in the use and benefits obtained with serum both as a "curative" and "preventative" remedy. The Ministry of Agriculture introduced the serum treatment into this country and supplied the serum free of cost to pig owners, but in January, 1923 (see Form No. A2/T.A.), ceased to supply the serum as a national economic measure. In this circular the Ministry recommend the use of serum as a "preventative." When free serum was available, there was little difficulty in persuading owners to adopt the treatment and considerable experience was gained as to its value as a preventative.

The majority of outbreaks occur in small herds of pigs from the cottager's sow and young to the usual quotum on the average farm. This paper deals with the disease established in a large herd of "Pedigree Essex Pigs" consisting of all classes and varieties, and being confined to a definite area, the course of the disease and results of treatment can be satisfactorily followed.

Choice of Serum.

There are many swine fever sera on the market, and all of them manufactured abroad. There is no British product. This should be a matter for serious consideration and reflection. The serum used in this outbreak was "Anti-Hog Cholera Serum" (Lederle) (sole London agents: Thos. Christy & Co.), as it is a "bloodless serum," and one which has been used by the writer in many outbreaks with excellent results. Anti-hog cholera serum is the serum from the blood of pigs highly immunised against "swine fever," and should as near as possible be free from blood content and colourless. "Bloody Sera" should not be used for reasons known to those conversant with "Sera Therapy."

There are two methods in which serum treatment can be used, i.e., "single or serum only" and "double or simultaneous." The serum only is the one in use in this country and the one adopted in this outbreak. The "simultaneous" is the one in general use in the U.S.A. The "serum only" is used where the disease *exists*, but mixing operations must be done to have a more or less permanent or

* This article was received Oct. 29/26. (Editor *Veterinary Journal*).

life immunity. The " simultaneous " as in use in America is used in infected and non-infected herds, and appears to the writer the correct and radical method to adopt in dealing with this disease. It consists in the inoculation of the living virus and contra inoculation of the serum simultaneously.

ORIGIN OF OUTBREAK.

On March 9th the disease was discovered to exist in a lot of 55 growing stores housed and isolated from all buildings in a straw stack as living quarters and fenced run as exercising ground in the midst of a field. Under such circumstances one would naturally try to confine the disease, every measure was thus adopted to prevent spread of infection to other premises, thorough disinfection of boots of the attendant by disinfectant boot bath, etc. etc., and having no communication with other swine on the farm whatsoever. 35 c.c. swine fever serum was inoculated into every apparently healthy pig, i.e. 51, and none contracted the disease. Here it may be of interest to record that 14 days prior to the outbreak of the disease, all the male pigs were castrated by the attendant, and those that fell sick were all males, and on *post-mortem* the usual confirmative lesions were found accompanied by acute pyæmic peritonitis traceable in all cases to the Scrotal incisions, the abdominal cavity being full of a thick purulent fluid. No female pigs developed or showed clinical symptoms of having contracted the disease. This suggests that the entrance of the infective virus may have been by the Scrotal wounds, and that the attendant may have been the " carrier " of the virus. Four *post-mortems* were made and one diseased pig was left for mixing purposes after serum treatment was adopted.

On March 18th the disease was discovered in a lot of 53 inferior and unthrifty stores housed as the lot of 55. The disease in this lot was of a very virulent nature ; the clinical symptoms and *post-mortem* lesions were typical of swine fever ; but there was found no Pyæmic Peritonitis. The differentiation between diseased and healthy in this lot was exceedingly difficult. Primarily temperatures were taken, but was found not to be a guide as to infected and non-infected, and the procedure adopted consisted in inoculating 35 c.c. into all pigs in a fairly fit state and feeding, and those showing advanced symptoms of the disease, off feed, and with excessive diarrhœa, were not inoculated, but kept for mixing purposes. Twenty-two in this lot died ; the remainder, including many infected pigs which received serum, recovered and began to thrive and do well. When infection and mixing had been thoroughly established, all " wasters " were slaughtered. From the proximity (200 yards) of this lot to another lot of 51 practically " fat pigs " fit to kill, it was decided to inoculate

them with 50 c.c, ; each pig and diseased pigs were imported for mixing and immunising purposes. In this lot not a single pig showed the slightest symptom of the disease, and the fatting process was successfully continued for six weeks, and they were sold when the prices were good, realising five guineas per head. *Not a pig died*, and after mixing had been established about 14 days, the imported pigs (now wasters) were removed and slaughtered.

On March 31st the disease was discovered in a lot of 55 stores situated 400 yards from where the disease originally started, and as this centre of infection was only 20 yards from the main breeding compound of sows with their young, there was little chance in preventing the disease reaching them. All apparently healthy pigs received 30 c.c. serum, resulting in 10 casualties.

On April 2nd the disease was discovered in the " breeding compound," some suckers being infected, all sows received 50 c.c. serum behind each ear (100 c.c. in all), every sucker received 25 c.c. in the armpit if over 14 days old ; 15-20 c.c. if under 14 days. Here it is of interest to note that 62 of the inoculated suckers were weaned three days after inoculation, and removed to a yard on the farm. Of this lot 35 died of the disease. The heavy mortality in this instance could have been averted had these pigs been left with their dams for a week or 10 days after inoculation, as the lot of 150 suckers inoculated and left with their dams had only three deaths, and when weaned all lived and did well. This " breeding compound " consisted of a 14-acre field divided into sections of half an acre allotted to each sow and its litter. Mixing with infected pigs was difficult to secure, infected pigs were installed from other lots, and communicating runs were arranged.

At this stage of the outbreak all swine on all the premises were inoculated with serum and diseased animals imported for mixing purposes. This resulted in a 100 per cent success.

At the time of the outbreak there were approximately on the premises 8 large boars, 8 small boars, 115 breeding sows and gilts (50 sows in pig), 321 suckers, 351 store and fatting pigs.

DOSES OF SERUM RECOMMENDED.

Mature boars, 100 c.c., 50 c.c. injected behind each ear.
Half-grown boars, 50 c.c. injected behind the ear.
Mature sows, 100 c.c., 50 c.c. injected behind each ear.
Half-grown sows (or gilts), 50 c.c. behind ear.
Large fat porkers, 50 c.c. behind ear.
Medium fat porkers, 35 c.c. injected in axilla.
Store or fatting pigs, 35 to 40 c.c. injected in axilla.
Weanling pigs, 25 c.c. injected in axilla.

Suckers, 10 days and upwards, 15 c.c. to 20 c.c. injected in axilla. To obtain the best results it is better to over- than under-dose.

Local Dressing used at seat of inoculation consisted of—

℞ Acid Carbol pur, Spts Terebinth aa ℥ii, Ol. Rapiiōl.

N.B.—Only one case of local abscess occurred at seat of injection.

From the occurrence of the disease on the premises to the date of clearance and freeing by the Ministry (August 6th), all pigs born on the premises were inoculated with serum at about 10 days old and subjected to infection. In no case did a sow abort her young, or give birth to still-born pigs, and the average litter numbered 10, and the health, quality, etc. etc., was good. Up to the time of writing (October 22nd) there has not been a single case of sterility among the sows, and the general health, etc. etc., of the herd is as if "swine fever" had never existed on the premises.

Observations on the Use of Swine Fever Serum, etc. etc.

The great obstacle to the general use of serum in the combating of this disease is the price of this product, and if a sound and cheap serum could be placed on the market, advantage would be taken of it by pig-owners, as the "slaughter policy" with compensation is only in force for the purpose of diagnosis, and when found to exist in a herd no further slaughtering is carried out. The premises are closed and the Swine Fever Regulations adopted.

1. The owner is free to adopt serum treatment if he wishes.
2. He is free to keep his herd and let the disease run its chronic course and kill off his fat pigs under movement orders, meanwhile using the usual segregative measures, disinfecting precautions, etc. etc., until his premises are declared free by the Ministry.
3. He is free to slaughter outright and cut his losses.

From the results obtained in the outbreak under consideration the adoption of serum treatment has been fully justified. Though an expensive procedure both as to serum, its administration and necessary labour, etc. etc., yet the owner has now got his valuable pedigree herd free from the disease and immunised against future attack as far as those which have received the serum is concerned.

Swine fever, its etiology, pathology, symptoms, *post-mortem* lesions, etc. etc., have not been discussed in this article, because these have been fully dealt with by many authors in text books and veterinary periodicals.

It is natural that the simultaneous treatment consisting in the injection of serum and virus is most effective when applied for preventive purposes; that is, vaccination of the animals is undertaken

before the disease develops in the herd. This procedure has been adopted throughout the United States and both the Federal Authorities, as well as the official veterinary organisation of the different states, recommend the simultaneous treatment for the prevention of hog cholera. There are approximately 10 to 15 million hogs being vaccinated annually by the simultaneous method, and the success of this procedure is no longer doubted by anyone who is familiar with the control of this disease.

The losses from hog cholera have been reduced in vaccinated hogs to a minimum, and it is a recognised fact that the simultaneous vaccination confers to the animals a life-long immunity. Therefore, when pigs shortly after weaning are vaccinated by this method, they are protected throughout their life.

The serum alone treatment is at times still practised in heavily infected herds. The majority of veterinarians, however, prefer even in infected herds when the infection has not yet attained serious proportions to use the simultaneous method. In such instances they take the temperatures of all animals, and those showing a temperature of less than 103 degrees receive the simultaneous treatment, and those showing a temperature of over 103 degrees are given serum alone.

The principal reason for preferring the simultaneous treatment is that an active lasting immunity is produced by the same ; whereas when serum alone is used an immunity of only a short duration is conferred upon the animals.

The danger of disseminating the infection when the virus is used in connection with the serum has been greatly discounted as a result of the tremendous practical experience gained in the United States. This applies especially when the virus is used by competent veterinarians. Furthermore, some states required a quarantine period of 30 days on animals vaccinated by the simultaneous method. This, however, has now been entirely abandoned throughout the United States due to the fact that there is no danger of disseminating the infection through vaccinated animals.

The advantages of the simultaneous treatment have been recognised for conditions prevailing in the United States and without exaggeration it may be stated that any step which would curtail or modify this treatment would be resented by the hog raisers of that country. It is so firmly established and accepted as the best procedure in controlling hog cholera that it has not only the support of the authorities but also in many localities where feeders of hogs desire to loan money from banks on their stock, the banks insist that such hogs be vaccinated by the simultaneous treatment as they consider it as an insurance against losses from cholera.

IN CONCLUSION.

The value of serum treatment may be further enhanced by attention to the following :—

1. Feeding regular on good food and liberal supply of water.
2. Cleanliness of pig quarters and a liberal use of disinfectants and antiseptic lime sprays on walls, floors, etc., gas tarring, or creosoting of posts and rails, etc.
3. Disinfectant foot baths should be available and kept clean and renewed often with fluid.
4. Plenty of fresh air and exercising ground provided, and avoid overcrowding.
5. Chronic cases and bad doers selected from healthy pigs when disease has been established, and all wasters should be slaughtered, as these become " carriers " and tend to prolong the disease in the herd.

The quantity of serum used in connection with this outbreak amounted to 26,000 c.c.

SPECIFIC HYSTERIA IN DOGS.

BY LOUIS SEWELL, M.R.C.V.S.,
London.

HISTORY OF THE DISEASE.

THIS disease is given the above name for want of a better one, but it certainly does not convey the intensity of the symptoms that are exhibited during the attacks.

It is supposed that the trouble first became known in the Southern States of North America, and that it has been imported into the British Isles from that source. It has only become really serious here during the last two years, and a very interesting point about it is that it has remained comparatively local, for the time being at any rate ; although, during the last few months, it has undoubtedly shown a decided tendency to spread, or rather to appear in other parts. The localities chiefly affected from the data collected are Southern Lancashire, Liverpool, Manchester, Cheshire, and parts of North Wales, and for about 30 miles or so around Dublin. There have also been cases in Yorkshire, Westmorland and a few in Scotland and some in the islands off Scotland.

As far as can be ascertained, the disease has only become known in the British Isles during the last three years, but unfortunately, according to statistics and data gathered it has apparently become more extensive each year, and is likely to do so unless it is definitely checked. However, in the course of my investigations in Ireland I was told by a prominent veterinary surgeon there that he had a very

similar condition to deal with in dogs over 20 years ago, but in that instance it quickly died a natural death, or rather disappeared as spontaneously as it arrived. However, it is still very mysterious as to why it remained so local, particularly if it is an infectious or contagious condition; especially as so many dogs go all over the country to Shows and Trials.

Type of Disease.

It is very hard at the moment to say under what category this disease should be classed because the cause is not yet known. By this I mean that it is not known whether it is of bacterial or other origin. A great number of people who have had it in their kennels or hospitals have the impression that the food is the cause, but as dogs have suffered from it that have been fed on practically every form of food, including meat, porridge, bread, rice, and proprietary foods, this can hardly be the case; in fact, it seems to prove that no individual form of food can be particularly blamed; furthermore, a chemical analysis of dozens of suspected specimens of food have all proved negative. The bacteriological side of the disease will be dealt with later, as at present investigations are not complete.

Ages of Affected Dogs.

At first I was inclined to believe that this disease was one of puppy-hood and in dogs up to two or three years of age, but as evidence began to accumulate I found that dogs of any age could be affected; in fact, evidence showed that puppies of two months old and dogs up to ten years old were susceptible. However, it is also a fact that the severity of the attacks increased on the downward scale, that is, the younger the dog the more severe the attacks which occurred. This is rather surprising, but one cannot get away from facts.

Seasons of Year When Encountered.

Undoubtedly, the spring and summer see the worst of this disease, whatever it is, but this year it has extended through the autumn and into the winter, though with not the same intensity as during the first periods mentioned. I did, however, hear in one case that it was worse in the winter, but I do not place much reliance in the source of my information, and the other 99 per cent. of evidence proves that it is otherwise.

Symptoms and Duration of Attacks.

Before attempting to describe these symptoms I would point out that most of the cases, although undoubtedly the same disease, display varying symptoms; no two cases are absolutely alike; and after going through the general data of over 500 cases I can pick out between 30 and 40 prominent symptoms which I shall condense for brevity.

Firstly, in many cases, and probably more, which are not recorded for lack of observation, there is a decided tendency for the dog to be just " off colour " and " tucked up " ; and in some others a slight tendency to looseness of the bowels, the motion being semi-solid and the colour of linseed oil, although many kind people who have supplied me with data are most emphatic that the cases they have had have given no warning whatever. One keeper went so far as to say that he had noticed that the disease chiefly occurred in dogs that were in pretty good condition.

The first apparent symptom of an actual attack is that without warning a dog will commence barking, howling, or screaming, some describe it as resembling the howl of a rabid dog, next, the affected animal, if in the open, will rush off and try to hide itself. In fact I heard of a case in Ireland where the dog ran for 10 miles and was picked up exhausted in a bog. If a dog is confined in a kennel when an attack comes on it will rush madly about trying to climb the walls, or dashing its head into them, and then try to hide in dark corners, screaming and howling and often foaming at the mouth. In fact, if one had encountered one of these attacks as an isolated case it would immediately be put down as a common or garden convulsion at first sight. However, close observation tends to show that most of these dogs are suffering from acute pain and fright, and when they run away they are merely trying in their own way to get away from the pain. I am sure this is of abdominal origin ; in fact, I was sure of it from the very first case I saw. This case I will explain as briefly as possible.

My client, who lived in Scotland, wired to say that she thought she had a contagious brain disease in her kennel, so I went up to see ; and, as luck would have it, a puppy about four months old was having an attack just when I arrived. I realised at once that it was not brain, but abdominal, for the pup's abdomen was as tight as a drum and it could not bear it to be touched. This was the trouble that had been going through the kennel for nearly two years, but dogs that had it last year did not get it this, so that it would appear that a certain amount of immunity results from an attack, which rather suggests that it is of bacterial origin. Several contributors of evidence have told me that just before an attack starts the dog will look anxiously round at its flanks as though something was worrying it.

There was one fairly consistent symptom that was given me ; namely, that excitement tends to bring on an attack. If this is so, it rather goes against the theory that the disease is of abdominal origin ; however, present bacterial evidence, although not conclusive, is fairly positive that it is abdominal.

As may be imagined, the disease is a very unpleasant one to handle; but, on the other hand, it is much worse from the dog's point of view, for some of them knock themselves about unmercifully and may often stun themselves. One Alsatian knocked out all its front teeth by tearing into an iron pump; another prize-winning red setter dislocated its hip and will be lame for life.

The eye symptoms are extremely interesting. As is only to be expected in cases of extreme fright and frenzy, the eyes become very congested and the pupils dilated. Further, in many cases the interior of the eye apparently becomes blood red in appearance, a thing seldom seen in dogs, but again indicating extreme cerebral congestion. In many cases owners have told me that dogs, during an attack, go absolutely blind, but this of course is hard to prove from a scientific point of view because it is practically impossible to examine a dog's eyes in this condition. No doubt the vision becomes impaired and distorted, as will be gathered from the symptoms described above.

The duration of these attacks is anything from two to 15 minutes, in some cases they have lasted half an hour, but this is very unusual, and they are liable to recur in from one day to three weeks, although it is seldom under four days that another attack takes place. Further, there may be anything from one to five attacks in genuine cases.

Most people will ask whether temperature is a symptom; this cannot be anything but unreliable under such circumstances as it is bound to be caused by fright if by nothing else. Personally, although I am a slave to the thermometer I would not waste time even if I could taking temperatures under such conditions; it would convey nothing, neither would the pulse.

After Effects and Mortality.

Luckily, and here we come to the only cheerful spot of the disease; the after effects are comparatively insignificant. If the attack has been very severe there are of course signs of exhaustion from which the dog will recover in an hour or two. After the milder attacks a slight shivering and a frightened look are all that remain for a short time. All the owners who state in their evidence that the dogs go blind, agree that as soon as the attacks pass off the sight is completely restored.

With regard to mortality, this is very small indeed; in fact, so small as to be almost negligible. However, some deaths have occurred through puppies dashing their heads against hard objects and thereby committing suicide. It is more than likely that this disease may take on a more virulent form unless the cause is found and it is possible to check it, and mortality is quite likely to increase.

Effect of Diet on the Disease.

A great number of people who have had this disease in their kennels are convinced that certain kinds of food are responsible for the disease, both natural and proprietary foods. Their argument on the surface seems very good, they say that as soon as they change the diet they have no more cases.

Another interesting feature was as follows: An owner of a kennel fed three dogs on one food and three on another; the ones that were fed on the first food got it, and those that were fed on the second food did not get it, although they were all in the same range of kennels. Against that there is another instance: three dogs of different breeds all fed out of the same dish with the same food. One developed the disease and the other two did not; it rather looks from that as though some subjects were susceptible and the others were not. However, as previously mentioned, any amount of analyses have been made of samples and usually by two independent analysts, and in no case has anything been found that is other than negative. I myself have in many instances tried to produce the symptoms with supposed infected samples and have never succeeded, so that with the present evidence to hand there is no justification in stating that food, or something in its composition is responsible for promoting the disease. For the sake of interest I have knowledge of cases occurring where the diet has been porridge, meat and rice, meat and bread, rabbit and rice, plain dog biscuits, and practically all proprietary dog meals.

Worms and the Disease.

It has been suggested by several people that worms may be at the bottom of the trouble, but *post mortem* results and general evidence do not support this. It was thought in America that the hook worm might be responsible for it, but the theory was found not to hold water, and we are luckily not bothered with that unpleasant parasite here.

Post Mortem and Bacteriological Findings.

Unfortunately, owing to the very low mortality, material for the *post mortems* and laboratory is extremely difficult to get. In fact, on account of this I have only been able to supply Professor J. W. H. Eyre, M.D., M.S., M.B., B.S., the Senior Bacteriologist at Guy's Hospital, with four specimens, two only of which could be destroyed; but from the scientific point of view they may turn out to be extremely valuable. The first was a pointer puppy four months old which had had three attacks and ten minutes before it was destroyed with chloroform in Dr. Eyre's laboratory it had an attack showing the usual symptoms. When this puppy was *post mortemed* there was found to be an abnormal amount of peritoneal fluid present, namely, 25 c.c.,

whereas the normal amount should be 5 c.c. This should be remembered. The central nervous system was taken out under absolutely sterile conditions and found to be unaffected. There was no other feature to report. Cultures were made from the blood and the peritoneal fluid and heavy Staphylococcus infection was found.

The second *post mortem* was made on a two-year-old lurcher that had not had an attack for several days and it was interesting in this case to know that there was only the normal amount of peritoneal fluid present. The nervous system in this case was also unaffected. The question that naturally arises from comparing the results of these two *post mortems* is whether this peritoneal fluid sets up very acute pains which are so severe that they drive the dog into the violent symptoms that it shows. It seems hardly possible, but it is rather significant that the pointer pup had an attack ten minutes before being destroyed.

However, without material this point cannot be thrashed out, but if any veterinary surgeon should get a chance of destroying a case shortly after it has had an attack and make a *post mortem* and notice and measure the peritoneal fluid I should be deeply grateful for any information on the matter ; as it will be very difficult for Dr. Eyre to carry on the bacteriological investigation unless our profession and the breeders can supply him with the necessary material.

I am deeply grateful to all my fellow veterinarians and the breeders whom I visited in the course of my investigations for all the assistance they have rendered to me.

Susceptibility and Diagnosis.

From data collected it would appear that all breeds are susceptible although naturally going round from one kennel to another one hears that one breed is more susceptible than another, but it is not so. Strangely enough I have not so far come across or heard of a Pekingese being affected. This may be rather remarkable as there are so many of them, but I do not think they abound so much in the affected districts. One veterinary surgeon told me that he found that dogs with any tendency to inbreeding were the most susceptible and also those in particularly gross condition.

General Remarks.

It is hoped that something definite may be found bacteriologically by Dr. Eyre and hopes of a prophylactic vaccine are in my mind ; to be used before the disease gets rampant again next spring. However, this remains to be seen.

Since the above was written I have heard of several cases in the South of England and any further developments that may come along I will ask the Editor to kindly report from time to time.

Corrigenda

"FIFTY YEARS AGO."

OWING to miscarriage of proofs in the Christmas post we regret that Major-Gen. Sir Frederick Smith, K.C.M.G., C.B., F.R.C.V.S., did not have the opportunity of correcting the article he contributed to the Special Army Number under the above title, and that errors, in accordance with the corrigenda slip herewith appended, unfortunately appeared in the text.

CORRIGENDA.

Page 6, 3rd line, *for* "changes" *read* "always"; 2nd paragraph, 6th line, *for* "Engineers' horses were provided for parade purposes only" *read* "Engineers, forage was provided for approved chargers only"; 3rd paragraph, 4th line, *for* "offices" *read* "office"; 4th paragraph, 9th line, *for* "had no voice. The" *read* "had no voice in the."

Page 7, 4th line, *for* "tinplate" *read* "stencil plate."

Page 8, 4th paragraph, 2nd line, *for* "horse" *read* "horses."

Page 9, 3rd paragraph, 11th line, *for* "shift draught" *read* "shaft draught."

Page 10, 5th line, *for* "main" *read* "man's"; 8th line, *for* "these were field" *read* "these were the field."

Page 11, 6th line, omit inverted commas; 7th line, insert inverted commas before "something"; 2nd paragraph, 15th line, *for* "who sold his remount" *read* "who sold his unsound."

Page 12, 2nd paragraph, 2nd line, *for* "allowance" *read* "allowances"; *for* "slight" *read* "and light"; 3rd paragraph, 3rd line, *for* "florid language" *read* "florid language when."

Page 13, 3rd paragraph, 11th line, *for* "uniform" *read* "status."

Reviews

A New Series of Animal Diagrams. By A. J. ANTHONY, M.R.C.V.S., D.V.S.M. London: Baillière, Tindall & Cox, 1926. 12 diagrams in portfolio. Price 25/-.

It is good to see a member of our profession moving with the times and recognising the fact that the qualification which he holds is not merely one which makes him proficient in the study of the diseases of the animal when alive, but it enables him to branch out into other fields in which the knowledge he has acquired should, and does, make him by right, "the man in authority."

Veterinary science has many sides to it and the members of our profession have been stupidly and apathetically slow in not recognising this years ago.

Mr. Anthony is helping to pioneer a new line for the graduates who will follow after him. He is not only proving himself, by the position which he holds as veterinary inspector to a very large bacon factory, to be competent in the practical side of meat inspection, but he is taking

up the attitude that the education of the butcher and the butcher's man in things which pertain to their everyday calling, is as wise as it is necessary.

In acting as the lecturer to the classes of the National Federation of Meat Traders' Associations, Mr. Anthony is doing good work for his profession, and it is in this category that he has persuaded Messrs. Baillière, Tindall & Cox, the well-known veterinary publishers, to produce a series of diagrams specially selected and drawn for the students of the animal industry, and particularly adapted for Mr. Anthony's own lectures; and, by the way, in the sketching of them (he has done them personally), he has shown himself to be an artist of no small merit. The sketches are clear, easily read and understood, and particularly adapted for lectures of this kind. The price is cheap and they will be found exceedingly useful to any veterinary surgeon who wishes to demonstrate from the butcher's side, the points of the cow and the pig. F.H.

Correspondence

To the Editor of THE VETERINARY JOURNAL.

DISTEMPER.

SIR,

We venture to request once more the hospitality of your valuable columns in order to inform the public of the progress of that research into the causes and prevention of Distemper which has only been rendered possible by their constant munificence and their patient confidence in our efforts for so long a period. In our special buildings at Mill Hill, the continuous industry of the scientific workers of the Medical Research Council has produced results which have never been achieved before. A summary of our scientific report will shortly be sent you. Very briefly we will attempt to condense it in simple language into a reasonable space: (1) Our investigators have confirmed that a filter-passing ultra microscopic virus is the primary cause of distemper, and they have described the symptoms of the disease itself as distinguished from its many secondary maladies; (2) They have, by inoculation, rendered several of our puppies so far immune from the perils of distemper that a slight and temporary rise in temperature was the sole result of subsequent infection with the disease; (3) This means that on the lines along which they are working a method will, it is expected, be evolved which will be capable of conferring upon dogs a lasting immunity from distemper.

It is necessary to explain further (*a*) why this immunity cannot be at once enjoyed by every dog, and (*b*) what may well be the last big step necessary for producing a safeguard which will not only be useful under practical conditions, but easily procurable in all parts of the world where dogs are suffering from distemper.

The only process which can at present be employed involves the use of crude materials of uncertain and inconstant strength and quality. It is therefore completely unfitted for use by anyone except the skilled biologist working under the specially controlled conditions which we

have created. There are several ways by which a more practical method may be developed and standardised; but an essential preliminary is the successful cultivation of the distemper-virus outside and apart from the body of an animal, to provide a more abundant and satisfactory vaccine of constant quality and measurable strength. Thousands of experiments in this direction with filter-passing viruses of one kind or another are going on all over the world. It may take another month, another year, or more, to achieve our purpose; no one can tell. But we have done enough already to be able confidently to predict success, if we continue to receive support.

What that success will mean, both to dogs and to the human race, the communications you have published in previous issues have sufficiently explained. But it is almost a year since we trespassed on your courtesy for space, and we do so now without any sensational appeal for urgent or excessive pecuniary aid. That aid has steadily been forthcoming, week by week, until we have reached within five thousand pounds of the £25,000 estimated as the total necessary for the completion of our work. Our old friends continue to stand by us. It is only, therefore, to bring our work to the notice of those who may still be unaware of it that we send you this letter; for we believe that no Englishman who owns or ever owned a dog will wish to stand outside the only movement that has ever given a certain prospect of mitigating the intolerable trouble of distemper. Supporters of our Fund should communicate with its Organising Secretary at Windsor House, Bream's Buildings, London, E.C.4. They will appreciate the fact that owing to our co-operation with the Medical Research Council, every ten shillings sent us immediately attains the value of a sovereign.

We desire publicly to express our thanks to all our helpers in the past year, to the American Distemper Council, to the Association of Masters of Foxhounds of England and of the United States, to the Kennel Clubs of both countries, to the Princes of India and our sporting fellow-countrymen in that great division of our Empire, to correspondents from all parts of the world who have read our previous statements in your columns, and more especially to the devoted, skilful, and indomitable labour of the scientific men to whom are due the real achievements rendered possible by the generosity of your readers.

PORTLAND (President of the Field Distemper Council).
BUCCLEUCH (Vice-President).
THEODORE A. COOK (Hon. Secretary).

Windsor House,
Bream's Buildings,
London, E.C.4.
Dec. 20th, 1926.

To the Editor of THE VETERINARY JOURNAL.

DENTAL CARIES IN MAN AND ANIMALS.

DEAR SIR,

In the December issue of your journal you kindly mentioned the fact that I am collecting specimens of carious teeth of animals.

Having examined both histologically and macroscopically a large number of sections of human teeth (I have a collection of well over 1,000

sections of deciduous teeth, prepared by Weil's method, apart from large numbers of permanent teeth), I find that there is a very close connection between the build, especially the finer structure, and caries. In general, the worse the structure the greater the amount of caries. For a long time I have tried to obtain carious teeth of animals (of dogs in particular) to try to ascertain whether this rule holds in these cases also, but so far the number received has been negligible.

If any veterinary surgeons are kind enough to collect material, I should be most grateful if it could be put into tubes containing 10 per cent. formalin and sent to me at Sheffield University. I can send labelled tubes or bottles containing the fixative to anyone who may be able and willing to collect material.

Yours faithfully,

MAY MELLANBY.

The University, Sheffield.

Congratulations to Major DUNCAN S. RABAGLIATI, O.B.E., F.R.C.V.S., B.Sc., D.V.S.M., on his appointment as Chief Veterinary Inspector for the County Council of the West Riding of Yorkshire.

This is a position which has been recently created and the salary commences at £750 a year, rising by increments of £25, to a maximum of £900.

Major RABAGLIATI is at present Assistant Veterinary Inspector to the Corporation of Edinburgh, and although only a comparatively young man, has had not only a brilliant college career, but his name is well known to the profession for the services he rendered to the Egyptian Government, both before, and during, the Great War.

The County Council of Yorkshire are to be congratulated on their selection.

Amongst the New Year Honours List we note with pleasure the name of Mr. GEORGE H. WILLIAMS, M.R.C.V.S., one of the veterinary surgeons to His Majesty the King, as having the honour of being appointed a Member of the Victorian Order. Mr. GEORGE WILLIAMS, who is also a member of the Royal College of Surgeons, comes of an old veterinary family, and is a well-known and popular London practitioner who has specialised in the examination of hunters and carriage horses for soundness.

Publishers' Notices

All communications should be addressed to 8, Henrietta Street, Covent Garden, London, W.C.2. Telephone: Gerrard 4646. Telegrams: "Bailliere, Rand, London."

Letters for the JOURNAL, literary contributions, reports, notices, books for review, exchanges, new instruments or materials, and all matter for publication (except advertisements) should be addressed to the Editor.

Binding Cases for Volume 82 and any other previous volumes can be obtained from the publishers. Price 2s. 9d. post free.

Copy of advertisements should be in the hands of the publishers—Bailliere, Tindall and Cox—not later than the 25th of the month, or if proof is required, not later than 23rd.

Annual Subscription, 21s. ($5.00 U.S.A. currency) post free.